California Regional Water Quality Control Board
San Diego Region

Total Maximum Daily Load for Dissolved Copper In Shelter Island Yacht Basin, San Diego Bay

Response to Comments Report

January 27, 2005

STATE OF CALIFORNIA

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ALAN C. LLOYD, Ph.D., Agency Secretary, California Environmental Protection Agency

State Water Resources Control Board

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San Diego Region

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LIST OF PERSONS THAT SUBMITTED COMMENTS

Organizations

Adams and Albies Inc.
Alpha One Diving, Chris Boyd Diving and Star Marine
Ancient Mariners Sailing Society
Bay Club Marina
California Professional Divers Association
Crow's Nest
Department of Boating and Waterways
Environmental Health Coalition
Fraser/Gold Coast Marina
Half Moon Anchorage
Hallmark Yachts
InterOcean Systems, Inc.
Kona Kai Marina
Metzger Development Services, LLC.
NMMA and MOAA
North American Marine Antifouling Coatings Task Force
North American Marine Antifouling Coatings Work Group
Recreational Boaters of California
Shelter Island Marina
San Diego Unified Port District
San Diego Yacht Club
SD Marina LLC
Seabreeze Books & Charts
Shelter Island Yacht Basin Group
Silvergate Yacht Club
Southern California Yachting Association
Southwestern Yacht Club
Tonga Landing
U.S. Environmental Protection Agency

SHELTER ISLAND YACHT BASIN STAKEHOLDERS

(illegible) Michael
Allan Edwin
Ann Kinner
Anne and Arthur Sacks
Annette M. and J.E. Peck
Aoife O'Herlihy
Audrey B (illegible)
Barbara Merriman
Bobbie Reed
Ben Young
Beverly Willcox
Bill Lewis
Bill Swink
Brad Russell
Brandon Johnson
Brian A. Bennett
Bruce Nesbit
C.E. Campion
C.W. McGrath
Catherine Zavala

Chad Lewis
Charlene Avarboce
Charles Teplitz
Chris Selvy
Christine W. Bara
Christopher T. and Geri L. Myhre
Chuck Cattran
Chuck Iverson
Cleve and Sandy Hardaker
Cynthia Martello
D.O. Wrigly
D.W. McAllen
Dale Eigenberger
Dale Thompson
Dan O'Malley
David H. Babcock
David Bond
David Breninger
David Fuller
David L. Wood
Denis Jackson
Donald Heier
Donald E. Phariss
Duane B. and Dorathy A. Carson
Ducime Chapman
Emily Russell
Ed Short
Ed Washington
Edward Baxter
F.H. Muraglia
Frank Harding
Fred Hecker
Gail Jesswein
Gayle O'Connell
George Benedict
George Elwers
George Neill
Gerold R.
Gertrude and Thomas Duffy
Glenn Kennedy
Gregg (illegible)
H. and (illegible) Rose
Jack Ciardelli
Jackie Bell
Jackie Taylor
Jacqueline Ramos
James Catto
James D. Faustine
James Holmberg
James B. Wachtler
Janice Payne
Jay Herdick
Jed Olenick
Jeff Adrian
Jeff Price
Jere McFarland
Jim Hoslison
Jim Torian
Joe and Jo-Ellen Palreiro
Joe Urbon
John Davis
John McPeek
John F. and Dee S. Pruyn
John Searcey
John Voigt
John White
Joseph Acosta
Joseph Elden Gresham
Joseph Ward
Judith Ingalls
Juliana B. Griffin
Kathleen Jones
Kathryn Ham
Kathy Smith
Kendall Stow
Keith and Karen Whlin
Kenneth Man
Kirsten Stahl
Krista Campion
Lewis B. H.(illegible)
Lindsay and Linda Banks
Luis R. Rinkel
M. Jean Moore
M (illegible) Pruyn
Marlin Carpenter
Marshall Wattif
Martin Brewer
Mary Gossler
Mary Michael
Maureen and Theodore O'Conner
Micheal K. (illegible)
Michael (illegible)

Michael Kirk
Micheal Lewis
Michael Lichtenwald
Michael Matthews
Michael S. Johnson
Mick Laver
Mika Roberts
Nancy Lasky
Nay Chuly
Neil McGuiness
Orville Yarbrougl
Patricia Etter
Paul Birchy
Paul McQullan
Paula Miller
Peter Urbon
Phil Kinmson
Phillip Seitz
Ralph Neiger
Ralph Price
Rene and Maureen Savalle
Richard B.(illegible)
Richard D. Maue
Richard Goward
Richard Hohol
Richard Jackson
Richard M (illegible)
Richard Vos
Rick Lober
Rick Mendell
Rita Hyde
Robert Cline
Robert Larmer
Robert MacFarlane
Robert Moore
Robert Seaman
Roger Whitmore
Roger Wilson
Ron B. Presley
Russell Jones
Scott Gossler
Scott Taylor
Stepl Pepper
Steve Napear
Steve Urquisart
Ted Gay
Ted Samouris
Terence and Candice Gleeson
Terrance James Brown
Thomas Kilgurn
Tim Cowell
Toby Fuller
Tom Alexander
Tom Schock
Vanessa and Mike Lewis
Wayne Owens
Wendy Cline
William Berkontz
William Buffitt
William E. (illegible)
William J. (illegible)
William Jurel
William Palmer
William Patton
William R. and Renne E. Trudeau
William R. Lowe
Willis E. Short II
Willis Short
Four individuals with illegible names

Other Individuals
Ann Miller
Barbara Merriman
Dick Templin
Edward and Mary Denaci
Glenn Kennedy
Homer C. Kennedy
James Barnum
John S. Sanders
Joris Gieskes
Kurt Roll
Leigh T. Johnson
Rick Shrake
Robert W. Johnson
Vince Lombardo
William Standerwick

LIST OF ACRONYMS AND ABBREVIATIONS

Basin Plan	Water Quality Control Plan for the San Diego Basin – Region 9
BIOL	Preservation of biological habitats of special significance
MP	Management practice
CAC	San Diego County Agricultural Commissioner
CalEPA	California Environmental Protection Agency
CCC	California Coastal Commission
CCR	California Code of Regulations
CDFA	California Food and Agriculture Code
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
City	City of San Diego
COMM	Commercial and sport fishing
CTR	California Toxics Rule
Cu	Copper
CWA	Clean Water Act
CWC	California Water Code
DBW	California Department of Boating and Waterways
DPR	California Department of Pesticide Regulation
EMC	Event mean concentration
ERL	Effects range low
ERM	Effects range medium
EST	Estuarine habitat
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
IND	Industrial service supply
LA	Load allocations
LC	Loading capacity
MAA	Management Agency Agreement
MAR	Marine habitat
MIGR	Migration of aquatic organisms
MLLW	Mean lower low water
MM	Management measures
MOS	Margin of safety
MOU	Memorandum of Understanding
MS4	Municipal Separate Storm Sewer Systems
NAV	Navigation
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge and Elimination System
OAL	Office of Administrative Law
Port	San Diego Unified Port District
PRC	PRC Environmental Management, Inc.
RARE	Rare, threatened, or endangered species
REC1	Water contact recreation
REC2	Non-contact water recreation

Regional Board	California Regional Water Quality Control Board, San Diego Region
Sea Grant	University of California Sea Grant Extension Program
SCCWRP	Southern California Coastal Water Research Project
SDRWQCB	San Diego Regional Water Quality Control Board
SDRBC	San Diego Regional Beaches and Creeks
SHELL	Shellfish harvesting
SIYB	Shelter Island Yacht Basin
SPAWAR	US Navy's Space and Naval Warfare Systems Command
SQG	Sediment quality guidelines
SSO	Site-specific objective
State Board	State Water Resources Control Board
TBT	Tributyltin
TMDL	Total Maximum Daily Load
USEPA	United States Environmental Protection Agency
WDR	Waste discharge requirements
WER	Water effects ratio
WILD	Wildlife habitat
WLA	Waste load allocation
WQC	Water quality criteria

1. INTRODUCTION

This report provides responses to the comments timely received on the Total Maximum Daily Load for Dissolved Copper in Shelter Island Yacht Basin, San Diego Bay, Resolution No. R9-2005-0019, Basin Plan Amendment and Technical Report (draft Technical Report), dated October 24, 2003, and October 14, 2004. The draft Technical Report was made available to the public for formal public review and comment on October 24, 2003 through the website of the Regional Water Quality Control Board, San Diego Region (Regional Board) and at the Regional Board office. The first public comment period closed on January 26, 2004, and consisted of a 90-day comment period. Following the first comment period, the Regional Board revised certain sections of the draft Technical Report and released it for a second 30-day comment period, which commenced on October 14, 2004.

Some of the comments received on the October 14, 2004 draft Technical Report pertained to sections that had not been revised and were not within the scope of the review, and were thus untimely submitted. These comments were not included in this report. However, all of these comments echoed previously submitted timely comments for which responses were written. Thus, all the issues raised in the comments, whether untimely or timely received, are addressed herein.

The Regional Board received over 530 comments in testimony, letters, and emails from 230 interested persons on the draft Technical Report. The letters were not reproduced in this document. Individual comments were excerpted from the letters and testimony, and organized into categories that correspond to the section headings of this report. Similar comments were grouped and paraphrased. The comments are numbered sequentially in this report, and also have a comment ID number that links them to their source letter or document. The person(s) that submitted the comment is identified below the comment. Numerous individuals submitted form letters separately that contained the same comments. These individuals are referred to in the report as the "SIYB Stakeholders." Individuals included in the SIYB Stakeholders are identified in the "List of Persons that Submitted Comments" on page iv of this report. The names of many of these individuals were illegible because a signature was the only mention of the sender's name in the letter.

2. GENERAL ISSUES

The comments in this section are general in nature and, for the most part, don't pertain to a specific section of the Technical Report.

Comment No. 1 **Comment ID:** 301

Comment: Delaying the adoption of the Basin Plan Amendment and the Draft TMDL due to recent actions by USEPA and SWRCB would save the RWQCB Staff time and costs.

a. The U.S. EPA is revising the recommended water quality criteria document for copper. On December 31, 2003, U.S. EPA published a draft revision that will require public comment before final adoption. It will probably be finalized sometime in the next 12 months. Once the water quality criteria for copper is revised, the RWQCB will have to revise the Basin Plan and the Copper TMDL. The SIYB Group believes that during that time, it can continue with and complete scientific studies needed to develop a site specific water quality objective or permit translator for copper in SIYB. A site specific approach would avoid the expense and duplication of effort that would be associated with adopting a TMDL based on current EPA guidance and then amending the TMDL next year to conform with EPA's new guidance.

b. The SWRCB recently issued a notice of proposed TMDL Guidance and proposed Water Quality Control Policy ("Policy"). The Guidance will contain guidelines to be used by SWRCB and the RWQCBs to develop TMDLs in accordance with Section 303(d) of the Federal Clean Water Act (33 U.S.C. Section 1313(d)). SWRCB has issued the draft guidance and Policy for comments. Comments on the proposed TMDL Guidance and Policy are due February 11, 2004. It appears prudent and cost effective to delay the adoption of the SIYB copper TMDL so that the adoption of the Copper TMDL for SIYB will conform with the new Guidance and Policy.

Submitted By: Shelter Island Yacht Basin Group

Response: Whether or not delaying adoption of the Total Maximum Daily Load (TMDL) saves staff time and costs, inaction is not appropriate when there are other ways to deal with changes to the regulatory framework. Therefore, the Regional Board does not intend to delay adoption of the TMDL.

To address the possibility of changes to the water quality objectives, the proposed Basin Plan amendment was revised to include a method for recalculating the TMDL, Margin of Safety (MOS), allocations and reductions in the event that the water quality objectives for dissolved copper change, due to either a revision of the copper criteria by the United Satet Environmental Protection Agency (USEPA), or development of site-specific objectives (SSOs). The Regional Board has reviewed the State Water Quality Control

Board's (State Board's) draft policy and guidance for addressing impaired waters. The process followed in developing the Shelter Island Yacht Basin (SIYB) TMDL for dissolved copper is consistent with the draft policy and draft guidance.

Comment No. 2 **Comment ID:** 562

Comment: Help! We need some bodies to come and sign up to speak and the relinquish their speaking time to the representatives of our Shelter Island committee on TMDL's/ The meeting will be at the Water Quality Board offices located at 9174 Sky Park Court in Kearney Mesa. The meeting starts at 9 AM and all you have to do is come and sign up and leave. This is important, so if you can't come please send your wife/husband, friends, liveaboards, dogs, cats and anyone you find standing of the corner with a sign that says "I will work for food" the Commodore (the new one that is) said he would buy them lunch! Please spread the word.

Submitted By: James B. Wachtler

Response: Comment noted.

Comment No. 3 **Comment ID:** 476

Comment: The Regional board staff has not provided responses to comments on the September 2003 Draft TMDL made by SIYB Group and others.

Submitted By: Shelter Island Yacht Basin Group

Response: The Regional Board's responses to all comments, timely received, are included in this report.

Comment No. 4 **Comment ID**: 344

Comment: That the Shelter Island Yacht Basin is the subject of a 1998 listing for copper is not in dispute. Neither is it a matter of contention that the Board is obliged to develop a TMDL for that water body and, by appropriate means, to work toward remedying any impairment of its water quality.

Submitted By: NMMA and MOAA

Response: Comment noted.

Comment No. 5 **Comment ID:** 468

Comment: NMMA and MOAA have worked closely with the Shelter Island Yacht Basin Group for the past year in connection with this proposed action. We have become convinced that no other group of stakeholders has a better or more intimate understanding of the Shelter Island Yacht Basin and its needs that this group. Its members are in daily contact with the affected boaters, they are familiar with the capabilities and the limitations of the hull cleaners and boatyards operating within the Basin, and they understand better than any other party the practical and economic implications of a proposed action affecting the bottom coatings of the boats that they harbor.

NMMA and MOAA commend the comments, past and present, of this expert group to the Board for careful study. Where observations offered by other groups about conditions in the Basin or the costs or consequences of proposed regulatory actions are mere speculations unless supported by some empirical evidence, observations rendered by the marina owners and operators represented by the Shelter Island Yacht Basin Group are themselves empirical reports made by those competent to be heard on the facts. Beyond its legal obligation, the Board has every practical incentive to treat the observations of this group as record evidence, and to weigh and respond to each of their stated concerns with care and due reflection.

Submitted By: NMMA and MOAA

Response: Comment noted.

Comment No. 6 **Comment ID:** 463

Comment: Finally, NMMA and MOAA wish to address the future of the Shelter Island Yacht Basin. Should a TMDL be adopted for this water body, we believe that voluntary action by the boating community, in close coordination with the Board, offers the best opportunity for an outcome that respects both the waters and the ability of local citizens to experience them.

Submitted By: NMMA and MOAA

Response: The Regional Board agrees that coordination between the boating community and the Regional Board will result in the mutually desired result of improved water quality. However, the Regional Board will not rely solely on voluntary measures. The TMDL will be implemented through Waste Discharge Requirements (WDRs), conditional Waivers of WDRs (waivers), and/or a Discharge Prohibition (prohibition).

Comment No. 7 **Comment ID:** 460

Comment: At the outset, NMMA and MOAA wish to express their support for two significant changes in the content of the revised Draft Report. The first is the Board's decision to rely on State rather than federal law for the tools to control dissolved copper under the TMDL. The second is the inclusion of a provision acknowledging that the TMDL's numeric targets will be altered to reflect new water quality objectives should a site-specific objective for dissolved copper be adopted for the Shelter Island Yacht Basin.

Submitted By: NMMA and MOAA

Response: Comment noted. Please see Comment No. 8 for further discussion regarding the Regional Board's decision to defer a determination of whether passive leaching is a nonpoint or point source discharge.

Comment No. 8 **Comment ID:** 561

Comment: If you want to rid copper from a couple of basins all you have to do is make Shelter Island an island again. Using a bridge to get to with water all around Shelter Island would adequately flush all copper sediments from both Basins. Open the south end of San Diego Bay to the ocean would flush the whole bay and solve the real problem.

Submitted By: Rick Shrake

Response: Comment noted. This approach does not address the impacts of copper loading from SIYB to San Diego Bay.

Comment No. 9 **Comment ID:** 642

Comment: While the Port District is supportive of the Regional Board's attempts to address the dissolved copper issue, we believe that the approach proposed is flawed for the reasons set forth above and in our comments submitted December 9, 2003. We again reiterate our offer to work with the Regional Board, and other stakeholders throughout the region and the state, to resolve this important water quality issue.

Submitted By: San Diego Unified Port District

Response: Comment noted. The Regional Board appreciates the San Diego Unified Port District's (Port's) willingness to work cooperatively to resolve outstanding issues.

Comment No. 10 **Comment ID:** 526

Comment: Page 48: The second sentence incorrectly states that the "Port owns the tidelands and submerged lands, occupied by marinas in SIYB." The District does not own these lands, but hold them in trust for the State of California.

Submitted By: San Diego Unified Port District

Response: The Technical Report has been changed to reflect that the Port holds the tidelands and submerged lands occupied by marinas in SIYB in trust for the State of California.

Comment No. 11 **Comment ID:** 571

Comment: The Department of Pesticide Regulations (DPR) appreciates the opportunity to comment on the Shelter Island Yacht Basin Copper Total Maximum Daily Load (TMDL).

In accordance with the Management Agency Agreement between DPR and the State Water Resources Control Board, DPR staff has been in consultation with the San Diego Regional Water Quality Control Board (Regional Board) throughout the development of this TMDL and has helped refine the TMDL's technical and policy-oriented information. We support the Regional Board's adoption of this TMDL and implementation plan. Moreover, DPR plans to continue working with Regional Board staff to develop and implement measures to control copper discharges to meet water quality objectives.

Submitted By: John S. Sanders

Response: Comment noted.

Comment No. 12 **Comment ID:** 599

Comment: In closing, please understand that the Yacht Basin Tenants do realize that we do have an issue here. We are [not] trying to stick our heads in the sand or point fingers at someone else. We only ask that you keep the public comment and review period of this Amendment open so we can discuss economics and give everyone more time to collect more data and in the long run, come up with a plan that is most beneficial to San Diego Bay. Please keep in mind that all the marina and yacht club operators are recreational users of the Bay as well. We want a clean bay too.

Submitted By: San Diego Yacht Club

Response: This comment was received verbally as testimony at the December 2003 hearing. The Regional Board extended the comment period for an additional 45 days after the close of the hearing to allow additional time for public review and comment.

Comment No. 13 **Comment ID:** 516

Comment: The technical issues identified above, as well as those described by Tim Moore in his comments, should be further evaluated by the Regional Board staff and addressed in a revised Draft Report prior to the matter being brought before the board at a public hearing.

SD Marina appreciates the opportunity to submit comments, and respectfully requests that the Regional Board consider the issues raised herein and revise the Draft Report accordingly.

Submitted By: SD Marina LLC

Response: The Regional Board considered all of the comments made by Mr. Richardson on behalf of SD Marina LLC, and Mr. Moore prior to issuing the final Technical Report. This Response to Comments Report contains responses to the comments received and indicates where the Technical Report was revised as a result of those comments.

Comment No. 14 **Comment ID:** 524

Comment: II. Technical Analysis, Pre-Introduction, at page 8: This section begins by stating, "Shelter Island Yacht Basin (SIYB) is a recreational marina located in San Diego Bay." The District believes that this should be changed to reflect that SIYB is made up of numerous marinas, yacht clubs, an anchorage, a fuel dock and other facilities that support the marine industry.

Submitted By: San Diego Unified Port District

Response: The Technical Report has been changed as suggested in the comment.

Comment No. 15 **Comment ID:** 589

Comment: "Stakeholder Participation. Interested persons and the public have had a reasonable opportunity to participate in review of the amendment to the Basin Plan." (see pg. 10 of the Technical Report).

- We have had only six weeks to read, understand, evaluate and comment on a document (and body of research) that took more than 3 years to develop. That is

not adequate given the complexity of the issues. It took several weeks just to locate qualified experts to advise us.

- The Technical Report asserts that the marina owner/operators "knowledge" is central to the rationale for why they can be held responsible as dischargers. However, we have not yet received all of the supporting data and information we requested. (see EPA guidance issued in October, 1993 @ p. 5, the CTR @ p. 31701 re: Minimum Levels, and the State Implementation Plan @ p. 4-4).

- If the Regional Board does not intend to make a decision until mid-February [2003], there is no downside to allowing the record to remain open during that same period.

- We are offering to close some of the data gaps called out in the Technical Report. The record must remain open so that we can submit new data to replace unnecessary assumptions.

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest

Response: This comment is from the testimony at the December 2003 hearing and is dated in its assertion that the public had only six weeks to understand and comment on the draft Technical Report, dated October 24, 2003. In response to the testimony, the Regional Board extended the comment period for another 45 days following the hearing.

The Regional Board has provided the public sufficient time to respond to the TMDL prior to an action being taken by the Regional Board. The SIYB TMDL has been under development since January 2000. During this time, the Regional Board has conducted three public workshops (May 2000, March 2003, and November 2003) and met with affected stakeholders on numerous occasions. Additionally, the draft Technical Report was made available to the public for formal public review and comment on October 24, 2003, on the Regional Board's website and at the Regional Board office. The formal public comment period on the draft Technical Report closed on January 26, 2004, amounting to a 90-day comment period (twice the legal requirement of 45 days). Additionally, earlier drafts of the Technical Report were posted on the Regional Board's website showing the technical analysis needed for TMDL calculation.

The public comment period was extended by 45 days as a result of input by stakeholders. Additionally, the public comment period was re-opened as a result of a revised draft Technical Report being released on October 14, 2004.

The commenter has received all the data that was requested.

Comment No. 16 **Comment ID:** 379

Comment: More time is needed for evaluation.

Submitted By: Chuck Cattran, Edward and Mary Denaci, Glenn Kennedy, Gayle O'Connell, Recreational Boaters of California, and Shelter Island Yacht Basin Group.

Response: Numerous sound scientific studies and reliable data sets indicate that water quality in SIYB is impaired due to high levels of dissolved copper. A thorough discussion regarding the copper pollution observed and documented in SIYB is contained in the draft Technical Report. Considering the reliability of the studies and the extensive amount of time devoted to public input to the TMDL process (described below), additional time to develop more information is not warranted.

The Regional Board's TMDL process has provided the public sufficient time to respond to the TMDL prior to an action being taken by the Regional Board. The SIYB TMDL has been under development since January 2000. During this time, the Regional Board has conducted three public workshops (May 2000, March 2003, and November 2003) and met with affected stakeholders on numerous occasions. Additionally, the draft Technical Report was made available to the public for formal public review and comment on October 24, 2003, on the Regional Board's web site and at the Regional Board office. The formal public comment period on the draft Technical Report closed on January 26, 2004, amounting to a 90-day comment period (twice the legal requirement of 45 days).

Comment No. 17 **Comment ID:** 378

Comment: Even if every boat in Shelter Island Yacht Basin stopped using copper-based anti-fouling paint today, the concentration of dissolved copper in the water would not decline much because the amount of copper in San Diego Bay also exceeds the standard. Why is Shelter Island Yacht Basin being singled out?

Submitted By: Adams and Albies Inc., Ann Kinner, Chuck Cattran, Dan O'Malley, Rick Shrake, Seabreeze Books & Charts, San Diego Yacht Club, and San Diego Unified Port District.

Response: Although elevated copper concentrations in the water column and sediment are a problem throughout San Diego Bay, available data do not support the assertion in the comment that water quality objectives for dissolved copper are exceeded everywhere in the Bay. A TMDL for dissolved copper was developed for SIYB because it is on the List of Impaired Water Bodies for exceeding the water quality objective for dissolved copper, toxicity and pesticides. This list is prepared pursuant to section 303(d) of the Clean Water Act (CWA). In the San Diego Region, SIYB is currently the only marina or harbor on the List of Impaired Water Bodies for dissolved water column copper. While water quality impairment due to dissolved copper is likely to exist in other marinas with a high density of recreational vessels and low tidal flushing, data available during the last

listing cycle was insufficient to support placing other marinas on the List of Impaired Water Bodies. If and when sufficient data becomes available, other marinas may be added to the list and TMDLs will subsequently be developed for these waterbodies. In the San Diego Region, the data to support, or not support additional listings will be collected through various monitoring efforts, the most notable being the Regional Harbor Water Quality Monitoring Program. This program will be conducted by Harbor Authorities in the San Diego Region as required by a Regional Board directive, dated July 24, 2003, to obtain water quality and sediment information pursuant to California Water Code section 13225.

Other clean-up efforts and TMDLs associated with toxic pollutants are occurring in other locations within San Diego Bay. Sediments in and around the NASSCO and Southwest Marine shipyards are currently undergoing clean-up efforts in a collaborative effort led by the Regional Board. The San Diego Bay Shoreline at the mouths of Chollas Creek and Paleta Creek are both on the List of Water Quality Limited Segments and have undergone initial toxicity identification evaluations. Also, the shoreline between Sampson and 28th Street is listed for copper contamination causing a degraded benthic community and sediment toxicity.

The Regional Board recognizes that the copper pollution problem in SIYB is likely part of a bigger problem that may exist in other recreational harbors and bays across the State. For this reason the Regional Board has been and will continue to pursue additional regulatory, and possibly legislative, solutions with other government agencies having legal authority over the registration, sale, and use of copper-based antifouling paints in California.

Comment No. 18 **Comment ID:** 405

Comment: The high copper concentrations in SIYB is not an isolated problem and should not be treated as such. The problem of elevated copper levels in marinas resulting from the use of copper-based antifouling paints is an issue that should be addressed at a statewide or national level.

Submitted By: San Diego Unified Port District, and SD Marina LLC.

Response: In the San Diego Region, SIYB is currently the only marina, bay, or harbor on the List of Water Quality Limited Segments issued pursuant to CWA section 303(d) for elevated levels of dissolved copper in the water column. While dissolved copper impairment likely exists in other marina areas with a high density of recreational vessels, low tidal flushing, and other site-specific factors, there were insufficient data to support adding these water bodies to the list in 2002. The State Board is in the process of analyzing water quality data and recommending waterbodies for addition to or deletion from the 2004 version of the list. All available copper data for San Diego Bay has been submitted to the State Board for this exercise. The State Board's recommendations should be known within the next few months.

The Regional Board recognizes that the copper pollution problem in SIYB is likely part of a bigger problem that may exist in other recreational harbors and bays across the state. For this reason the Regional Board will continue to pursue additional regulatory, and possibly legislative, solutions with other government agencies having legal authority over the registration, sale, and use of copper antifouling paints in California. The Regional Board has been coordinating for several years on the SIYB TMDL with the California Department of Pesticide Regulation (DPR), the San Diego County Agricultural Commissioner (CAC), and the USEPA. The State Board has a formal Management Agency Agreement (MAA) with the DPR dated March 1997 that commits both agencies to work together to jointly address violations of water quality standards due to pesticides. In support of the MAA, DPR has also developed the Process for Responding to Pesticides in Surface Waters (Process) dated March 2003 that describes specific actions that both agencies may undertake to address water quality problems resulting from the use of pesticides. For example, the Process recognizes that the DPR can designate a pesticide as a restricted material or cancel a pesticide's registration in California. The Process also recognizes that the Regional Board can designate a waterbody on the CWA List of Water Quality Limited Segments as impaired due to pesticides, and subsequently develop a TMDL to resolve the impairment.

In the event that regulations or restrictions on copper antifouling paints are eventually imposed on a countywide, statewide, or national level, it is likely that the required copper wasteload reductions will be achieved in SIYB sooner than the 17-year schedule proposed in the TMDL Implementation Plan.

Comment No. 19 **Comment ID:** 380

Comment: Protecting and improving water quality should be accomplished with regulations based on facts and science and in accordance with all applicable laws, rules, guidelines, and orders.

Submitted By: Dale Eigenberger, Edward and Mary Denaci, Ed Washington, Fred Hecker, George Elwers, Half Moon Anchorage, John F. and Dee S. Pruyn, Jack Ciardelli, M(illegible) Pruyn, Mika Roberts, Recreational Boaters of California, Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest, Russell Jones, Rene and Maureen Savalle, Richard Hohol, and Terence and Candice Gleeson.

Response: The Regional Board agrees that improving water quality should be accomplished with regulations based on facts and science and in accordance with all applicable provisions. For this reason, the TMDL project was developed over the course of five years and is based on an extensive amount of scientific and economic research, public outreach, and coordination with numerous governmental agencies.

There is extensive data and scientific studies demonstrating both the presence of elevated dissolved copper levels in SIYB, and the cause of these levels. The elevated copper levels have been clearly shown to result from the use of copper-based antifouling paints on recreational vessels moored in SIYB. Copper in antifouling paints is applied to boat hulls for the express purpose of killing marine fouling organisms. The draft TMDL Technical Report contains references to numerous scientific studies and monitoring surveys conducted over the past 20 years in SIYB that document exceedances of the numeric copper water quality objectives and narrative objectives for toxicity and pesticides. At the range of copper concentrations found in SIYB, the scientific literature documents adverse impacts of copper on aquatic organisms, particularly for bivalves, such as clams and oysters. A number of local scientific studies specifically conducted in SIYB document elevated copper concentrations in sediment and mussel tissue, SIYB water column and sediment toxicity, and adverse affects on biota.

The Regional Board is under a legal obligation to adopt TMDLs for waterbodies listed on the State's List of Impaired Water Bodies, therefore this action is supported by federal law. Adoption of a TMDL will result in an amendment to the Basin Plan. The basin planning process contains several requirements, all of which the Regional Board has carefully considered. For example, basin planning is subject to requirements of the California Environmental Quality Act (CEQA). CEQA requires that the Lead Agency for a project (in this case, the Regional Board) do an environmental analysis of the reasonably foreseeable method(s) of compliance with the stated requirements, and also consider economic factors in this analysis. The Regional Board has completed all of these necessary requirements.

Additionally, the Regional Board has met with the public on numerous occasions to discuss the TMDL project, as described in Appendix 8 of the draft TMDL Report. Three public workshops were conducted over the course of three years to present the TMDL to all interested stakeholders, and to receive public input. Finally, the Regional Board has been, and will continue to be active in working with governmental agencies having authority over the sale and use of legally registered pesticides, such as the USEPA and the DPR, to look for regulatory and possibly legislative solutions to the water quality problem in SIYB.

In short, the Regional Board has developed the SIYB TMDL project based on extensive scientific research, and has abided by all applicable legal provisions governing the Regional Board's mission to preserve, enhance, and restore the quality of California's water resources for the benefit of present and future generations.

Comment No. 20 **Comment ID:** 388

Comment: Bottom Paint will last longer when cleaned with a "Rotary Carpet Shampoo Brush." By delaying your next Bottom Painting you are: Keeping Leached Copper out of your Marina.

Submitted By: Alpha One Diving, Chris Boyd Diving and Star Marine.

Response: The method of maintaining boats described in this comment is an endeavor to reduce or eliminate the copper discharges from boat bottoms. The Regional Board can not specify the method of achieving compliance with the required load and wasteload reductions.

The method described in this comment should be further discussed and evaluated with the Port and the marina owners/operators operating in SIYB who could be establishing additional requirements, coordinating commercial demonstrations and scientific studies for meeting the required load and wasteload reductions. These actions are further described in the Implementation Plan of the Technical Report. The method described in this comment could be further evaluated in one of these demonstrations or studies.

Comment No. 21 **Comment ID:** 369

Comment: Governor Arnold Schwarzenneger has issued Executive Order S-02-03 that prohibits the Board from taking action to adopt the TMDL. Even without the Executive Order, [we] request that the Board defer decision in this matter for a like period to enable it to collect the necessary additional data and to re-cast the Draft Report in a form that will survive review.

Submitted By: Shelter Island Yacht Basin Stakeholders, Hallmark Yachts, Half Moon Anchorage, Metzger Development Services, LLC., NMMA and MOAA, Recreational Boaters of California, Shelter Island Yacht Basin Group, Seabreeze Books & Charts.

Response: The State Board has determined that Basin Planning activities including TMDL development are not subject to Governor's Executive Order S-02-03 because they are not regulations. Therefore, Governor's Executive Order S-02-03 does not preclude the Regional Board from proceeding with consideration and adoption of the SIYB TMDL for Dissolved Copper.

Numerous sound scientific studies and reliable data sets have indicated that SIYB water quality is impaired due to high levels of dissolved copper. Considering the reliability of the studies and the extensive amount of time devoted to public input to the TMDL process, additional time to develop more information is not warranted.

The SIYB TMDL has been extensively reviewed by both a peer reviewer and the public, and revised as appropriate. The technical foundation of the TMDL is solid, and is likely to survive any subsequent review or challenge. The Regional Board does not intend to defer action on the TMDL.

3. LEGAL ISSUES

The comments in this section deal with legal issues. Most of the comments address whether or not passive leaching of copper from boat hulls is a point source or a nonpoint source of pollution.

Comment No. 22 **Comment ID: 393, 525**

Comment: Several interested persons have raised legal objections to the proposed use of NPDES requirements to implement the load reductions set forth in the technical TMDL. The main points raised in those comments are that passive leaching of copper from boat hulls and copper discharges from marinas are not point source discharges, that marinas are not point sources and should not be regulated as such, that passive leaching is incidental to the normal operation of a vessel and is not subject to NPDES regulations, and that residual copper from antifouling paints is not a pollutant and not subject to NPDES regulations. Some persons also expressed dismay that the Regional Board has not responded in sufficient detail to legal arguments challenging reliance on NPDES requirements to implement the TMDL for SIYB.

Submitted by: Shelter Island Yacht Basin Group, National Marine Manufacturers Association and the Marina Operators Association of America, Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina (formerly Shelter Point Marina), San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing and Crow's Nest, San Diego Unified Port District.

Response: Due to the controversy surrounding the issue of relying on NPDES requirements to implement the TMDL copper reductions, including several legal objections to this approach, the Regional Board has elected to defer consideration of the need, or legal authority, for issuing NPDES requirements for the Port, marina owners/operators, individual boat owners, or hull cleaners at this time. Less controversial implementation alternatives that do not depend on the issuance of NPDES requirements are available.

Modification of the proposed implementation plan for this TMDL should not be construed as a rejection of the analysis prepared to support reliance on NPDES requirements. However, the controversial nature of the proposal to rely on NPDES requirements tended to distract many commenters, and the Regional Board, from the technical merits of the TMDL. The legal issues raised by interested persons need not be addressed in detail at this time, but would need to be fully considered by the Regional Board if, in the future, it should propose to regulate copper discharges from passive hull leaching under NPDES requirements.

The Regional Board has modified the Implementation Plan for the SIYB TMDL to omit reliance on the challenged regulation under NPDES requirements. The Regional Board need not address each specific comment where the thrust of multiple comments, cumulatively, raised a broad objection to the proposed strategy. It is sufficient for the Regional Board to indicate that the issues raised were of sufficient significance to convince the Regional Board to emphasize an alternative approach. The Regional Board is under no obligation to agree with or refute individual comments in detail, provided that it considers them, and if appropriate, modifies its proposed action in a manner that resolves, or avoids, the comments. Only where the Regional Board does not modify the proposed action would it be necessary for the Regional Board to provide detailed responses explaining why the challenged proposal was not modified.

As a result of these comments, portions of the section entitled "Legal Authority for TMDL Implementation Plan" making the case that the discharge of copper from boat hulls is a point source, and text stating that the Regional Board will implement the load reductions through issuance of NPDES requirements have been deleted from the Technical Report. The section entitled "Implementation Plan" was rewritten to identify a range of administrative tools available to the Regional Board to regulate the discharges of copper to SIYB rather than relying only on issuance of WDRs that implement NPDES regulations.

Comment No. 23 **Comment ID:** 448

Comment 448: Note that the Technical Report does not state that passive leaching is a nonpoint source. Nor does the Board staff disavow the use of federal NPDES permits to regulate passive leaching. Everything in the text of the report shows that the Board staff merely intends to defer this decision until a later time. However, EPA will almost certainly veto or amend the TMDL to force the Board to issue NPDES permits to marina owner/operators. Since that will occur after the Regional Board, State Board and Office of Administrative Law have all acted, there will be no opportunity to comment on or appeal the NPDES permit requirement once EPA makes its decision on the proposed TMDL. This is precisely what happened to the City of Vacaville when EPA partially disapproved one small footnote limiting application of the Tributary Rule in the Central Valley Board's Basin Plan.

Submitted by: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina (formerly Shelter Point Marina), San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing and Crow's Nest

Response: It is unlikely that the USEPA will veto or amend the Technical Report because it does not identify passive leaching as either a point or nonpoint source discharge. The arguments for and against regulating passive leaching under National Pollution Discharge Elimination System (NPDES) requirements may need to be addressed as the Regional Board pursues implementation, not prior to adoption of the

Basin Plan amendment. The Regional Board's deferral of any determination regarding the applicability of NPDES requirements to passive leaching, or the scope of such requirements, does not impinge on established interpretations of the CWA or NPDES requirements, as would a provision limiting the application of the Tributary Rule.

Comment No. 24 **Comment ID:** 311

Comment: It also appears that the jurisdiction of the Board over the basin is questionable. It is our understanding that the Shelter Island Yacht Basin is a navigable waterway, and that the jurisdiction of the Board does not extend to navigable waterways.

Submitted by: Recreational Boaters of California.

Response: The Regional Board's jurisdiction extends to all waters of the state within the San Diego Region, including navigable waterways. The waters of San Diego Bay in SIYB are waters of the State as defined in the California Water Code, which includes all surface water or groundwater, including saline waters, within the boundaries of the State. Nothing in the Clean Water Act, which relies on federal jurisdiction over "navigable" waters to extend federal regulatory jurisdiction to most surface waters within the United States, can be construed to oust the state from its jurisdiction to regulate waters and water quality within the territorial limits of the state.

Comment No. 25 **Comment ID:** 449

Comment: Finally, it should be noted that the State Water Resources Control Board declared in their Nonpoint Source Control Program Plan that pollution from marinas and recreational boating is considered nonpoint pollution best controlled through management measures (see pg. 65). The Regional Board lacks authority to revise the State Board's existing determination as to whether discharges from a marina constitute a point source or a nonpoint source.

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest

Response: The State Board has not made findings in a formal decision, order, policy or regulation on whether or not passive leaching from boat hulls is a point source or a nonpoint source. The NPS Program Plan treats passive leaching as a nonpoint source and includes management measures for marinas. However, the NPS Program Plan does not include explicit findings that discharges from a marina constitutes a nonpoint source, or preclude Regional Boards from determining that such discharges qualify as discharges from a point source. The NPS Program treats marina discharges as nonpoint sources

because the USEPA has put marina discharges into that category. Additionally, a program plan does not have the same weight as a Board order or decision on the issue. Thus, the NPS Program Plan's treatment of marina discharges does not limit the Regional Board's scope in regulating copper discharges at marinas.

Comment No. 26 **Comment ID:** 340

Comment: On the whole, EHC strongly supports the adoption of this resolution and implementation plan and applauds the Regional Board for taking these first steps to eliminating the discharge of toxic copper from point sources in our Bay. Copper is a toxic pollutant that significantly impacts the beneficial uses of the Bay.

EHC specifically agrees with the Regional Board's interpretation of the law, in that the discharge of residual copper to SIYB from antifouling paints applied to the hulls of recreational boats constitutes a discharge of pollutants to waters of the United States and requires a National Pollution Discharge Elimination System (NPDES) permit under the Clean Water Act. In addition, we agree with the Board's conclusion that each individual boat hull is itself a "point source," and that the marina facilities are "cumulative point sources" of residual copper because they serve to congregate boats in high densities and thereby concentrate the discharge of residual copper to SIYB. We also agree with the Board's conclusion that it can hold the Port of San Diego, SIYB marina owner/operators, individuals owning boats moored in SIYB, and SIYB hull cleaners accountable for the discharge of residual copper to SIYB. We believe that regulating these entities with NPDES permits is an important step to eliminating toxic copper pollution into the San Diego Bay.

Submitted By: Environmental Health Coalition

Response: Due to the controversy surrounding the issue of relying on NPDES requirements to implement the TMDL copper reductions, including several legal objections to this approach, the Regional Board has elected to defer consideration of the need, or legal authority, for issuing NPDES requirements for the Port, marina operators, individual boat owners, or hull cleaners at this time. Please see the response to Comment No. 22 for more discussion on this issue.

Comment No. 27 **Comment ID:** 441

Comment: It is especially important to note that "less toxic alternatives" are not a viable compliance strategy. The TMDL Technical Report makes it absolutely clear that "any molecule of pesticide that does not reach a target organisms... is a pollutant under the Clean Water Act and a waste under the California Water Code." (pg. 36) Because the Basin Plan prohibits the discharge of toxic substances and residual pesticides, alternatives which are merely "less toxic" would still be illegal by the logic presented on page 13 and 14 of the Technical Report. Copper hull coatings were "less toxic" than the Tributyltin

coatings they replaced (see pg. 82 & 164), however, that did not insulate the less toxic paints from the newly proposed TMDL regulations. Nor will "less toxic" alternatives be exempt from future regulations. Only "non-toxic" alternatives should be considered when evaluating the reasonably foreseeable consequences of adopting the TMDL.

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest

Response: The comment is incorrect that the Basin Plan prohibits the discharge of toxic substances and residual pesticides. Rather, the Basin Plan states that the discharge of waste to waters of the State in a manner causing, or threatening to cause a condition of pollution, contamination or nuisance as defined in California Water Code section 13050, is prohibited (pg. 4-15). In other words, the Regional Board can prohibit discharge of waste in a manner causing, or threatening to cause, impairment of beneficial uses. The Basin Plan does not preclude the discharge of dissolved copper, except where a condition of pollution occurs.

One of the Regional Board's primary means of protecting the Region's water resources is through the issuance of WDRs. WDRs impose conditions that protect water quality, implement the Basin Plan, and when the discharge is to waters of the United States, meet the requirements of the CWAAct. WDRs impose limits on the quality and quantity of waste discharges and specify conditions to be maintained in the receiving waters. Therefore, discharges of dissolved copper to SIYB can occur, provided they are regulated properly under WDRs, or another appropriate regulatory mechanism.

SIYB has an assimilative capacity for dissolved copper, meaning that this waterbody can receive a certain amount of the pollutant, over a given time period, and still maintain water quality objectives. The assimilative capacity for SIYB was determined to be 567 kg dissolved copper/year. Therefore less toxic alternatives are a viable option for attainment of beneficial uses, as long as the total discharge does not exceed the assimilative capacity, or TMDL, for this waterbody.

Comment No. 28 **Comment ID:** 349

Comment: Identification of the "Pollutant"

The Draft Report recognizes that there is an ongoing dispute between U.S. EPA and some elements of the State of California concerning the circumstances under which a registered pesticide can constitute a pollutant under the Clean Water Act. Relying on the statement in *Headwaters Inc. v. Talent Irrigation District*, 243 F.3d 526, 532-33 (9th Cir. 2001) that "residual acrolein" which leaked from the waters to which it was first applied into adjacent waters constituted a pollutant upon its re-discharge, the Draft Report concludes that "residual pesticides" are pollutants subject to NPDES control. While this conclusion

is too coarsely stated to be strictly true or false from a legal perspective, it left the drafters with a need to define their term -- a term used here in a regulatory context.

Without discussion, the Draft Report defines "residual pesticide" as "any molecule of pesticide that does not reach a target organism." Draft Report at 50, note 2, and 52. This definition suffers from a number of deficiencies, chief among them that it is impermissibly vague. Nothing in the definition provides a standard for how long after application or under what conditions one would be justified in concluding that a "molecule of pesticide" has failed to reach a target organism. The Draft Report definition provides no guidance on where in the water column one would first find such a "residual," or how long after a pesticide's initial application to the target environment a "residual" is to be measured. Is it at the interface with the hull itself, 5 yards from hull, or 200 yards from the nearest vessel? Where attainment of water quality standards and compliance with permit conditions are at stake, greater precision is required in the identification of the place or time at which a substance becomes a regulable pollutant.

This difficulty may have its roots in the offhanded way in which the Ninth Circuit panel used the term "residual acrolein" in the *Talent* opinion, (COMMENTOR'S FOOTNOTE: In the opinion, the court also failed to describe precisely what was meant by that term. :END FOOTNOTE) although it is worth noting that the Talent court looked to the ultimate release of the pesticide from a canal in which the target organisms were located as the point at which the pesticide was first discharged as a "residue" and, according to the court, a pollutant. Here, there is no such line of demarcation upon which to rely in separating "pesticide" from "residue." Regardless of the source of this confusion, however, if the Board adopts the Draft Report, it will be obligated to use this key phrase with sufficient precision to allow the performance of a principled TMDL and to allow the regulated community to have an objective measure of its compliance. Failing in that obligation renders the proposal legally defective.

Submitted by: NMMA and MOAA

Response: A molecule of copper has failed to reach a target organism when it leaches off the hull of the boat into the water column. The copper on the hull is designed to prevent or retard the attachment of fouling organisms to the hull of the boat. The target organisms are the fouling organisms which are attaching to the hull. Any copper which leaves the hull is not reaching fouling organisms which are attaching to the hull and is therefore residual copper.

In *Headwaters v. Talent*, the pesticide was applied to the irrigation canal to kill target organisms in the canal. The court made several rulings in the case. First, it determined that the obligation to obtain an NDPES permit under the CWA is not preempted by FIFRA. Second, it addressed the requirement to obtain an NPDES permit. The CWA requires a permit for the discharge of a pollutant to navigable waters from a point source. The court determined that the direct application of the aquatic herbicide to irrigation canals constitutes a "discharge," that the residual pesticide that remains in the water after its application constitutes a "pollutant," and that the irrigation canals constitute

"navigable waters," or waters of the United States because they are tributaries to the natural streams with which they exchange water. The court did not address whether the discharge was from a "point source" because Talent Irrigation District did not dispute that the hose that delivered the herbicide was a point source.

Just as in *Talent* where the direct application of pesticide is considered a discharge, so the leaching of copper from boat hulls to the water column may be considered a discharge. In *Talent* the residual pesticide that remained in the canal after application was determined by the court to be a pollutant. Similarly, any copper in the water of SIYB from boat hulls is residual pesticide that is not reaching a target antifouling organism attaching to a hull and, by analogy, also would be a waste.

Comment No. 29 **Comment ID:** 457

Comment: The absence of scientific consensus violates the Frye standard and the Daubert standard expressed by the Supreme Court. It is per se arbitrary, capricious and unreasonable for one state agency (and one federal agency) to declare copper-based antifouling hull paints to be safe and legal even as other state agency (and a different department with the same federal agency) purport that those same products are harmful to the environment.

Submitted by: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina (formerly ShelterPoint Marina), San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing and Crow's Nest

Response: The Technical Analysis presents substantial evidence to establish the link between copper-based antifouling paints and elevated copper levels at SIYB. The Regional Board has coordinated its scientific analysis, and will continue to coordinate implementation of the TMDL, with the USEPA, DPR and CAC to resolve this water quality impairment. For further discussion on this topic, please refer to Comment No. 96.

Comment No. 30 **Comment ID:** 537

Comment: Cases Relied Upon by RWQCB in Support Are Not Analogous. The RWQCB claims that the District has control over the marinas, through District-imposed amendments to existing leases, and that the marinas have control over the individual boat owners. The RWQCB's argument that control by the marinas (and thus, control arguably by the District) is appropriate, rests upon three types of cases: Municipal Separate Storm Sewer System ("MS4) Permittees; Outdoor Shooting Ranges; and, Concentrated Animal Feeding Operations ("CAFO").

The RWQCB's reliance on the fact that NPDES permits are required for municipal separate storm sewer system ("MS4") permittees as support for issuing a permit to the

District is simply misplaced. Unlike this matter, Congress specifically required NPDES permits for MS4s pursuant to Section 402(p) of the Clean Water Act. An MS4 is defined as a conveyance or system of gutters, ditches, manmade channels or storm drains, which is owned by a state, county, municipality, or other public entity, and that is designed or used for conveying storm water. 40 CFR § 122.26(b)(8). An MS4 therefore meets the definition of a point source. Passive leaching from boat hull paints, on the other hand, is a nonpoint source, as discussed above. As such, any attempt to rely upon the issuance of NPDES permits to MS4s to defend the position that an NPDES permit should be issued in this case is unsupportable.

The RWQCB's analogy of the unique facts in this matter to those it has described from New York Coastal Fishermans Association v. New York Athletic Club (footnote 8), is similarly misplaced. In NY Coastal Fishermans Association, the court held an athletic club responsible for the discharge of lead and steel shot by its members, based upon the fact that the club was "designed to concentrate shooting activity from a few specific points and systematically direct it in a single direction over Long Island Sound." RWQCB Legal Authority for TMDL Implementation Plan, at p. 21. The court reportedly found that the club was "an identifiable source from which spent shot and target fragments are conveyed to waters of the United States."

Footnote 8: The District was unable to locate a copy of this case as no citation was provided.

The facts supporting the RWQCB's proposed SIYB/TMDL are dissimilar to those in NY Coastal Fishermans Association. There, the club, but not the individuals who used the shooting range, was held responsible for the discharge of a pollutant. The rationale for this, however, was that the shooting range, and all of the concrete platforms, were located on the land owned, operated and controlled by the club. In the case of the SIYB/TMDL, however, the individual boats at issue are neither owned, nor operated by, the marinas. Even further removed from the ownership or operation of each boat is the District.

Even assuming that the passive leaching of copper from boat hulls were not excluded from the definition of a "point source," another significant distinction has been overlooked by the RWQCB. The actual "source" here, i.e., boats in SIYB, are neither stationary, nor under the actual control of either the marina or the District. A marina may attempt to control a specific boat, but the boat may simply chose to move to another marina, or anchor out elsewhere in San Diego Bay or other locales.

Finally, the RWQCB's reliance upon regulation of CAFOs is unfounded. As the RWQCB is aware, Congress specifically identified CAFOs as "point sources" within the meaning of the Clean Water Act, at Section 501(14) of the Act. (Footnote 9) Unlike CAFOs, any discharge incidental to the normal operation of a vessel, which has been defined to include the passive leaching of antifouling paint, Clean Water Act §312(a)(12)(A)(i), is excluded from the definition of a "point source." See 40 CFR § 122.3(a); 40 CFR § 1700.3. As such, it is insincere of the RWQCB to use recent regulation of CAFOs as an analogy to that of individual boat owners, marinas, and their landlord.

Moreover, regulation of CAFOs was only achieved after an extensive, nationwide rulemaking, and applies across the country. In regulating CAFOs, USEPA took the time to level the playing field, and did not attempt to apply these regulations to just one region, or to one large animal operation, as in the case of the proposed SIYB/TMDL. Clearly, the situation with respect to CAFOs is not analogous to this matter.

Footnote 9 Section 502(14) defines the term "point source" as "any discernible, confined and discrete conveyance, including but not limited to any ... concentrated animal feeding operation." 33 U.S.C. § 1362(14).

Submitted By: San Diego Unified Port District

Response: The commenters' arguments pertaining to MS4s system and CAFOs are moot as the Regional Board is not deciding if passive leaching constitutes a point source or nonpoint source in this Basin Plan amendment.

Regarding the NY Coastal Fisherman's Association, the Regional Board's analogy is not based on ownership of the boats. WDRs or waivers could be issued to marina owners and operators based on their ownership of a facility that congregates boats and concentrates copper discharges causing a water quality impact. Likewise, WDRs or waivers could be issued to the Port since they act as the landlord through their responsibility to hold the SIYB lands in trust for the people of the State.

Comment No. 31 **Comment ID:** 502

Comment: Regulating copper-coated boats in the San Diego Bay or Shelter Island Yacht Basin excessively burdens interstate commerce, and therefore violates the dormant Commerce Clause of the United States Constitution.

The dormant Commerce Clause doctrine provides that a locality may not enact regulations to serve a local purpose if those regulations would excessively burden the free flow of interstate commerce. This doctrine has been applied to invalidate not only local regulations of the tangible goods of interstate commerce, but also regulations of modes of transportation in and through localities which indirectly impact commerce. For instance, in the leading case of Kassel v. Consolidated Freightways Corp. of Delaware, 450 U.S. 662 (1981), the United States Supreme Court invalidated, under the dormant Commerce Clause, a law which regulated the maximum length of trucks which could travel through the state of Iowa. Similarly, the Supreme Court struck down a law which regulated the type and shape of mudguards which could be installed on trucks driven in the state of Illinois. Bibb v. Navajo Freight Lines, Inc., 359 U.S. 520 (1959).

Boats entering San Diego Bay and the SIYB frequently originate from out-of-state. Boats traveling from state-to-state are analogous to trucks traveling interstate, and thus laws regulating the coating of boats would receive the same type of scrutiny as the laws

invalidated by the United States Supreme Court in Kassel and Bibb. For example, one federal district court invalidated a regulation on the length of boats allowed in New York waters, finding that it discriminated against out-of-state fishers and unduly burdened interstate commerce. Atlantic Prince, Ltd. v. Jorling, 710 F. Supp. 893 (E.D.N.Y. 1989).

The regulation contemplated under the Draft Report would discriminate against out-of-state commerce because all out-of-state boats would effectively be prohibited from ever entering into San Diego Bay or the SIYB. Local laws that discriminate against out-of-state commerce receive a heightened level of scrutiny under the dormant Commerce Clause jurisprudence, and the burden falls on the locality to justify their adoption. Even if not found to directly discriminate against out-of-state interests, any regulation of copper-bottomed boats would amount to a tremendous burden on the free flow of commerce into the San Diego Bay and the SIYB, as discussed more fully below. This burden would exceed any intended benefits from the regulation, and would therefore be unconstitutional.

Submitted By: SD Marina LLC

Response: Implementation of the TMDL would not "excessively burden the free flow of interstate commerce." The TMDL Basin Plan amendment regulates the discharge of copper into SIYB, not the type of boats (i.e. boats without copper-based antifouling paints) that can enter San Diego Bay and SIYB. Furthermore, the TMDL does not prohibit discharges of copper from boat hulls. This TMDL specifically addresses SIYB and will require a reduction in copper loading to SIYB. The exact means of compliance with the required copper reductions will be determined by the dischargers and is not specified in the Basin Plan amendment.

This comment overstates the anticipated impact of TMDL implementation on individual boat owners and especially transient boats. The impact of the TMDL will mainly be on resident boats moored in SIYB, not transient boats. For example, the marina owners/operators could reserve a certain number of slips for transient boats painted with copper. Under this scenario, the TMDL may have no impact on transient boats.

Comment No. 32 **Comment ID:** 505

Comment: The Regional Board has failed to adequately comply with sections 13241 and 13242 of the California Water Code.

Under state law, water quality standards must take into consideration what water quality is reasonably achievable in light of social and economic factors. Indeed, the Regional Board is required to engage in a balancing process when determining what water quality objectives and implementation plans are necessary and appropriate, taking into consideration a variety of factors including economic considerations. The State Board expressly has acknowledged that the Regional Board "is under an affirmative duty to consider economics in connection with its basin planning process." The Regional Board

needs to identify a range of reasonable alternatives and put them on an equal footing with its proposed alternative, and evaluate them through a legitimate and comprehensive CEQA process, before deciding on a TMDL. When developing water quality objectives and a program of implementation for achieving those standards, the Regional Board must account for the fact that water quality can be changed without unreasonably affecting beneficial uses.

The Regional Board failed to properly consider all factors, including economics, when issuing the Draft Report. As discussed in the meeting with the Regional Board on September 7, 2004, as well as in the December 2003 Comments and the comments submitted on November 10, 2004 by Risk Sciences, the Draft Report fails to include all of the costs associated with achieving the TMDL, nor does the Regional Board perform the balancing required by statute and policy.

Submitted By: SD Marina LLC

Response: Water Code section 13241 establishes the requirements attendant to the Regional Boards' adoption of water quality objectives. A TMDL implements existing water quality standards; it does not create new standards. Therefore, section 13241 does not apply to development of a TMDL.

Water Code section 13242 describes the requirements for an implementation program for achieving water quality objectives; namely:

a) A description of the nature of actions which are necessary to achieve the objectives;
b) A time schedule for these actions; and
c) A description of surveillance to be undertaken to determine compliance.

The implementation plan presented in the Technical Report includes all of these requirements.

Comment No. 33 **Comment ID: 411**

Comment: It is especially important to note that "less toxic alternatives" are not a viable compliance strategy. The TMDL Technical Report makes it absolutely clear that "any molecule of pesticide that does not reach a target organisms... is a pollutant under the Clean Water Act and a waste under the California Water Code." (pg. 36) Because the Basin Plan prohibits the discharge of toxic substances and residual pesticides, alternatives which are merely "less toxic" would still be illegal by the logic presented on page 13 and 14 of the Technical Report. Copper hull coatings were "less toxic" than the Tributyltin coatings they replaced (see pg. 82 & 164), however, that did not insulate the less toxic paints from the newly proposed TMDL regulations. Nor will "less toxic" alternatives be exempt from future regulations. Only "non-toxic" alternatives should be considered when evaluating the reasonably foreseeable consequences of adopting the TMDL.

Submitted by: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina (formerly Shelter Point Marina), San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing and Crow's Nest

Response: The Basin Plan does not prohibit the discharge of toxic substances and residual pesticides. Rather, the Basin Plan states that the discharge of waste to waters of the State in a manner causing, or threatening to cause a condition of pollution, contamination or nuisance as defined in CWC section 13050, is prohibited (pg. 4-15). In other words, the Regional Board can prohibit discharge of waste in a manner causing, or threatening to cause, impairment of beneficial uses. The Basin Plan does not preclude the discharge of dissolved copper, except where a condition of pollution occurs.

One of the Regional Board's primary means of protecting the Region's water resources is through the issuance of WDRs. WDRs impose conditions which protect water quality, implement the Basin Plan, and when the discharge is from a point source to waters of the United States, implement the requirements of the CWA and federal NPDES regulations. WDRs impose limits on the quality and quantity of waste discharges and specify conditions to be maintained in the receiving waters. Therefore discharges of dissolved copper to SIYB can occur, provided they are regulated properly under WDRs, or another appropriate regulatory mechanism, and are within the allocations prescribed by the TMDL.

SIYB has an assimilative capacity for dissolved copper, meaning that this waterbody can receive a certain amount of the pollutant, over a given time period, and still maintain water quality objectives. The assimilative capacity of SIYB for dissolved copper was determined to be 567 kg/year. Therefore less toxic alternatives are a viable option for attainment of beneficial uses, as long as the total discharge does not exceed the assimilative capacity, or TMDL, for this waterbody.

Comment No. 34 **Comment ID:** 661

Comment: "Pursuant to California Water Code section 13225, the Regional Board can require as necessary any State or local agency to investigate and report on any technical factors involved in water quality control, or to obtain and submit analyses of the water column. The Regional Board can also request enforcement by appropriate federal, State and local agencies of their respective water quality control laws." (pg. 70)

If DPR elects not to do comply with CWC sections 13247 or 13225, it can only do so if they do not concur with Regional Board staff's scientific studies or conclusions regarding the potential for adverse impacts on non-target organisms.

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest

Response: This comment is overly speculative. If and when the DPR becomes involved in TMDL implementation measures, the DPR will make its own determination regarding which actions are appropriate to take.

4. SITE-SPECIFIC OBJECTIVES AND WATER-EFFECT RATIO STUDY

The comments in this section address the issue of developing site-specific water quality objectives (SSOs) for dissolved copper in SIYB based on a water-effect ratio (WER) study.

Comment No. 35 **Comment ID:** 375

Comment: The San Francisco Bay Regional Water Quality Control Board adopted a Site Specific Objective for copper in South San Francisco Bay, resulting in a relaxed Water Quality Objective. The San Diego Regional Water Quality Control Board has not, but should, address this option.

Submitted By: Ann Kinner**,** Adams and Albies Inc.**,** Chuck Cattran**,** Dale Eigenberger**,** Ed Short**,** Fred Hecker**,** Gayle O'Connell, Hallmark Yachts, Jim Hoslison, Janice Payne, Jack Ciardelli, Mick Laver, M(illegible) Pruyn, NMMA and MOAA, Richard Hohol, Rene and Maureen Savalle, Ralph Price, Seabreeze Books & Charts, Shelter Island Yacht Basin Group, San Diego Unified Port District, Terence and Candice Gleeson, and Vince Lombardo.

Response: Developing a modified copper water quality objective for SIYB based on site-specific environmental conditions may be appropriate. A modified water quality objective is referred to as a site-specific objective (SSO).

The legally applicable water quality objective for copper in SIYB is 3.1 µg/L for chronic exposure, as described in the California Toxics Rule (CTR). Scientific studies could be conducted to examine the appropriateness of establishing a less stringent copper water quality objective (i.e., an SSO). A TMDL based on an SSO that is less stringent than 3.1 µg/L would require a smaller reduction in copper loading than the 76 percent reduction required under the proposed Basin Plan amendment. The SSO would need to (1) be based on sound scientific rationale; (2) protect the designated beneficial uses of SIYB waters; and (3) be adopted by the Regional Board in a Basin Plan amendment.

The CTR criteria are based on the toxicity results of a large number of nationally representative species to a single pollutant in clean controlled laboratory waters. The physical and chemical characteristics of ambient water at a particular site may result in an increase or decrease in the bioavailability and/or toxicity of a given pollutant. Examples of potentially confounding water chemistry characteristics may include dissolved organic matter, particulate matter, other contaminants, pH, and hardness. Similarly the aquatic life community at a particular site may be more or less sensitive to a pollutant than the aquatic organisms used to develop the CTR criteria. Because (1) ambient water chemistry, and/or (2) the biological communities at SIYB may be different than the chemistry and biological communities upon which the CTR criteria were based, the CTR

criteria may be over - or under- protective for SIYB. If scientific studies demonstrate that the ambient water chemistry and/or biological communities at SIYB are significantly different from the chemistry and biological communities upon which the CTR criterion were based, an SSO for copper may be appropriate.

In 1998, the City of San Jose, in conjunction with the Santa Clara Basin Watershed Management Initiative, funded studies to investigate the toxic effects of copper and nickel in the Lower South San Francisco Bay. The studies demonstrated that the chemical features of Lower South San Francisco Bay reduce the toxicity and bioavailability of copper and nickel through a variety of mechanisms. Additionally, an impairment assessment demonstrated that the CTR water quality objectives for copper and nickel for Lower South San Francisco Bay could be relaxed while still fully protecting beneficial uses. As a result, in May 2002, the Regional Water Quality Control Board, San Francisco Bay Region (San Francisco Regional Board), adopted SSOs for dissolved copper and nickel for Lower South San Francisco Bay. The copper water quality objective for Lower South San Francisco Bay was increased from 3.1 µg/L to 6.9 µg/L (chronic exposure) and from 4.8 µg/L to 10.8 µg/L (acute exposure).

Maximum copper concentrations measured in SIYB range from approximately 8 µg/L to 12 µg/L. Current copper concentrations in SIYB would violate a copper SSO similar to the SSOs developed for Lower South San Francisco Bay. Under this scenario, the Regional Board would still be required to adopt a TMDL mandating copper load reductions in SIYB - although the copper load reductions needed would be smaller than those required under the proposed TMDL Basin Plan amendment.

At a public hearing on the 2004 Basin Plan Triennial Review held on June 10, 2004, marina owners and operators residing in SIYB requested that the Regional Board include an issue on developing SSOs as part of the Triennial Review of the Basin Plan. This group announced that they had initiated a WER study following the USEPA guidelines necessary for development of SSOs for dissolved copper in SIYB. As a result, the Regional Board prepared an issue titled “Water Quality Objectives for Copper at Shelter Island Yacht Basin” for the 2004 Basin Plan Triennial Review. This issue was assigned a technical ranking and score relative to other Triennial Review issues. This issue was ranked 31st on the prioritized issue list. Resources currently available allow for the top six issues on the list to be investigated.

Although these recent developments may eventually result in a Basin Plan amendment to adopt SSOs for dissolved copper in SIYB, this does not obviate the need for a TMDL. Accordingly the appropriate strategy for addressing the copper water quality problem in SIYB is for the Regional Board to proceed with adoption of the proposed TMDL Basin Plan amendment at this time. If SSOs for dissolved copper are developed in the future and added to the Basin Plan, this TMDL Basin Plan amendment would be modified accordingly. Since the compliance schedule for the TMDL is 17 years, there is ample time to develop SSOs and amend the Basin Plan before final load reductions must be met.

A final concern is that the WER study being undertaken by the marine owners/operators only addresses copper toxicity in the water column and was not preformed to appropriate standards. Furthermore, the study does not address toxicity to benthic organisms from copper. Potential negative impacts to downstream beneficial uses, the presence of threatened and/or endangered species, the application of the state anti-degradation policy and any toxicity due to copper will all need to be investigated before implementing a modified WER.

It is recognized that the criteria could be updated through the implementation of a modified WER without amending the Basin Plan with an SSO. However, to ensure full public disclosure and review, and to memorialize the interpretation of the CTR objective in SIYB, a Basin Plan Amendment likely would be sought before implementing the modified WER. This will ensure that all the elements necessary to decide upon the appropriateness of implementing a modified WER are adequately vetted.

Comment No. 36 **Comment ID:** 469

Comment: If a TMDL is adopted for the Shelter Island Yacht Basin, NMMA and MOAA believe that it is critically important that the Board take full advantage of the flexibility that the law allows and that the Draft Report identifies in the implementation of its requirements.

First and foremost, the Board should work with stakeholders as early in the process as possible to develop and adopt a site-specific water quality objective for the Shelter Island Yacht Basin. In case after case on the Pacific Coast, site-specific criteria for dissolved copper have demonstrated that the aquatic population has a far greater tolerance than is suggested by generic, default water quality criteria. Much of the basic range-finding work for a Water Effects Ratio has already been accomplished by other commenters. Finding the partners and the resources to complete that work, or utilizing the more economical Biotic Ligand Model when U.S. EPA approves it for marine waters, should be a first priority for the Board.

Submitted By: NMMA and MOAA

Response: The Regional Board supports the collection of data and information necessary to determine if a modified WER value or some other site-specific criteria is appropriate for the SIYB. Unfortunately, the Regional Board does not have the resources to actively engage in these investigations.

In the meantime, using a WER equal to one in the CTR copper objective will ensure protection of beneficial uses in the water column of SIYB. This value is appropriately applied in using the CTR saltwater copper criteria as the numeric targets for the TMDL.

Comment No. 37 **Comment ID:** 578

Comment: Copper criteria approved for portions of San Francisco Bay, by the San Francisco Regional Board, demonstrate that the numeric targets can be more than twice as high without impairing beneficial uses. (See pg. 91-92 of Technical Report)

- Water-Effects Ratio (WER) studies are not especially difficult or expensive compared to the cost and effort required to strip and repaint more than 2,200 boats in SIYB or to implement a $300-$500,000 education campaign that may turn out to be unnecessary.

- EPA left a place-holder to make a WER adjustment (see pg. 31712 & 31716 of CTR). It is the state's prerogative whether to do so or not. Failing to do so relies on a worst-case assumption in lieu of real data to make the most accurate regulatory decision (e.g. a default WER value of 1.0; see g. 31691 of California Toxics Rule and p. 3 of State Implementation Plan).

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest

Response: The copper TMDL for parts of San Francisco Bay (SFB) can serve as a model project for the interpretation of the copper criteria through the development of a modified WER. While the SFB TMDL had the luxury of abundant data, the SIYB TMDL must proceed with available information. When sufficient data are acquired, they may reveal that a higher (i.e. less stringent) copper water quality objective is appropriate for SIYB.

Although a WER study may be inexpensive compared to the cost of stripping and repainting boats, the availability of a technically valid WER is not sufficient reason alone to establish a higher dissolved copper water quality objective in SIYB. Any alternative dissolved copper criteria for the water column must also meet the Basin Plan narrative toxicity and pesticide objectives in the water column and sediment, and not cause negative impacts to beneficial uses in San Diego Bay, or threatened and/or endangered species. Costs for just three rounds of toxicity testing and associated chemistry could easily approach $150,000 and represents just one piece of the needed information. Toxicity testing, chemical analysis and follow up monitoring are only part of the necessary work to be preformed. Since SIYB contributes copper to San Diego Bay, potential impacts to "downstream" beneficial uses in the Bay will also need to be assessed. Regional Board resources needed to review workplans, evaluate results, provide full public disclosure, and process a Basin Plan amendment for a SSO for SIYB must also be considered.

While adoption of a Basin Plan Amendment and SSO to incorporate a modified WER is not mandatory, the Regional Board prefers to incorporate the SSO in the Basin Plan to fully document and disclose the objective(s) as broadly as possible. A Basin Plan amendment is also desirable because the dissolved copper objectives, and narrative

toxicity and pesticide objectives are linked in SIYB. The relationship among these objectives in SIYB should be described and documented in the Basin Plan if a SSO is developed for dissolved copper.

The current WER value of one is appropriate for use in the equations that define the CTR saltwater copper criteria. Until sufficient information is available to justify a change, the value of one is appropriate for all CWA uses, including the SIYB TMDL. Once data are available to change the WER, the State has the discretion to interpret the CTR copper criteria based on a site-specific WER for SIYB.

Comment No. 38 **Comment ID:** 443

Comment: Ironically, Board staff also asserts that the Water Effect Ratio study being undertaken by the marine owners/operators is deficient because it:

"...only addresses copper toxicity in the water column. The study does not address toxicity to benthic organisms from copper in pore water in the sediment." (pg. 81)

If the failure to consider sediment flux precludes application of a site-specific WER then, according to the official peer reviewer, the same error invalidates the entire TMDL calculation. Board staff cannot set one standard for establishing default water quality criteria and a different standard for adopting site-specific criteria. If copper concentrations from sediment are relevant, they are relevant now as well as later.

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest

Response: The Regional Board did not fail to consider sediment flux in the calculation of the TMDL. Regardless, failure to consider sediment flux does not preclude application of a site-specific WER to interpret the CTR criteria for dissolved copper in the water column. However, in considering a WER and SSOs for SIYB, it may be necessary to perform sediment studies to ensure that the SSOs also meet the narrative water quality objectives for toxicity and pesticides in sediment. The Basin Plan specifies the narrative water quality objective for pesticides on page 3-13:

> "No individual pesticide or combination of pesticides shall be present in the water column, sediments or biota at concentration(s) that adversely affect beneficial uses. Pesticides shall not be present at levels which will bioaccumulate in aquatic organisms to levels which are harmful to human health, wildlife or aquatic organisms."

Since the mechanism for sediment contamination is through flux from the water column, the concentration of copper in the water column should be sufficiently low to protect the sediment and prevent adverse affects to beneficial uses. Therefore SSOs applicable to the

water column must also ensure that the narrative water quality objective for pesticides is not violated in the sediment.

The narrative toxicity objective states in part that:

> "All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in Human, plant animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration, or other appropriate methods as specified by the Regional Board."

As described in this objective, other analyses, besides a WER, may be needed to ensure that an SSO for dissolved copper in SIYB will meet the narrative toxicity objective in the water column and sediment.

Comment No. 39 **Comment ID:** 458

Comment: To date, the Regional Board has not provided written responses to the oral or written comments submitted by stakeholders before or after the hearing held on December 10th 2003. In particular, the marina owner/operators submitted more than $40,000 in additional site-specific water quality studies (including a preliminary Water Effects Ratio and supplemental toxicity tests) and not yet received any written response from the Regional Board acknowledging, let alone refuting, that new data.

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest

Response: Written responses to all comments timely received are provided in this report.

The investigation managed by RISK Sciences (samples collected January 8, 2004) represents a positive step forward toward interpreting the CTR for copper in SIYB through the development of a WER. However, this initial investigation also demonstrates the variability and difficulty encountered when developing a WER. The following comments on the preliminary WER study were provided to Mr. Moore of RISK Sciences via email on January 14, 2005, and are included herein.

Several aspects of the study need to be improved before the methods employed would be appropriate for a WER study. This is noted by Mr. Moore in his cover letter when he says, “Because additional studies must be performed to generate sufficient data to meet EPA’s requirements for modifying the copper criteria based on WER, we will have the opportunity to revise our experimental design to use methods like those employed by EPA approved in Norfolk and San Francisco.” Areas that need to be improved are discussed below.

1. How samples were collected from "2-3 feet above the bottom" without introducing unnecessary influence from the sediment must be clarified. Disturbing the bottom could re-suspend sediment that could contaminate the sample and lead to an incorrect characterization of near-bottom water. All tested constituents could be influenced.

2. The chemical analysis for total and dissolved copper and the other physical parameters should also be conducted on the composite surface and near bottom water that was used for the toxicity tests.

3. The use of archived spiked and unspiked sample water that was 5 days old for the second round of toxicity testing exceeds the recommended hold time of no more than 36 hours and the maximum hold time of 72 hours.

4. As noted in the report, the excessive dissolved organic carbon (DOC) in the polished seawater should be avoided.

5. Future studies must run the toxicity tests in polished seawater concurrently with the tests run in the sample water. This will ensure that as many variables as practical are similar for both sets of tested samples. The use of the Species Mean Acute value obtained from the USEPA database is only useful in providing a general sense of the range an actual WER could be. Concurrent toxicity tests must be used when conducting an investigation for the purpose of interpreting the CTR through a change in the default WER value.

Resources
Future investigations should be preceded by a work plan developed in concert with the Regional Board and other stakeholders. Furthermore, all work should be conducted with the oversight of the Regional Board. The WER investigation should adhere to the guidance contained in the following documents:

1. SWRCB, 2003. Compilation of Existing Guidance for the Development of Site-Specific Water Quality Objectives in the State of California. State Water Resources Control Board.

2. USEPA, 2001. Streamlined Water-Effect Ratio Procedure for Discharges of Copper. United States Environmental Protection Agency, Office of Water, EPA-822-01-005, March 2001.

3. USEPA, 1994. Interim Guidance on Determination and Use of Water-Effect Ratios for Metals. United States Environmental Protection Agency.

Important Considerations
In addition to adherence to the guidance provided in the documents listed above, the Regional Board will also be looking at several other issues when considering the appropriateness of a WER.

1. A WER will not be acceptable if it contributes to negative impacts on downstream beneficial uses. Downstream receptors include the water column in greater San Diego Bay and sediment environments both inside and outside of the SIYB.

2. Follow-up monitoring must be conducted to ensure that the WER adjusted CTR criteria is still protective of beneficial uses.

3. The presence of endangered or threatened (listed by either the state or federal government) may factor into a decision to decline a change to the WER default of value of one. A small difference between the WER adjusted criteria and the concentration likely to negatively impact a threatened or endangered species should be considered as a reason to deny adjusting the criteria.

4. If toxicity is confirmed to be present in SIYB and is caused by copper, the use of a WER to adjust the CTR copper criteria will not be considered.

5. Anti-degradation considerations must be fully reviewed before approval of the WER adjusted CTR criteria.

6. Full public disclosure must occur before, during and after the WER investigation and subsequent consideration for implementation.

Comment No. 40 **Comment ID:** 574

Comment: The water quality objectives for copper in SIYB specify that concentrations in seawater for dissolved copper should not exceed 3.1 µg Cu/L for continuous chronic exposures and 4.8 µg Cu/L for brief or acute exposures. These water quality objectives are based on, and equal to, the California Toxics Rule water quality criteria for dissolved copper promulgated by USEPA." (see pg. 7 of Technical Report)

- The statement is an oversimplification. The CTR criteria for copper is based on an equation that also includes a specific adjustment for factors that tend to make copper less toxic. (See pgs. 31712 & 31716 of California Toxics Rule).

- If data is developed for those factors, using EPA-approved procedures, the copper criteria can be automatically adjusted without amending the Basin Plan. (See EPA's Guidance on performing streamlined water effects ratios, March, 2001 pgs. 2-4).

According to EPA, they "pre-authorized" such adjustments at the time the CTR was promulgated. No additional EPA review or approval is necessary. (See EPA's Idaho letter)

- Later text in the Technical Report incorrectly implies that it would be necessary to develop a site-specific objective, at considerable time and expense, in order to make the appropriate adjustments.

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest

Response: The comment is correct that the CTR does allow saltwater copper criteria to be interpreted with site-specific WERs. A WER equal to one is built into the formulas that constitute the CTR saltwater copper criteria. The criteria can be interpreted by using a WER that is different from one after the completion of appropriate investigations. The current WER value of one is appropriate for use in the equations that define the CTR saltwater copper criteria. Until sufficient information is available to justify a change, the value of one is appropriate for all CWA uses, including the SIYB TMDL. Once data is available to change the WER, the State has the discretion to interpret the CTR copper criteria through the implementation of a modified WER.

However, potential negative impacts to downstream beneficial uses, the presence of threatened and/or endangered species, the application of the State anti-degradation policy and any toxicity due to copper will all need to be investigated before implementing a modified WER (these elements come from the USEPA Interim Guidance, 1994, and from the State Board's Compilation of Existing Guidance for the Development of Site-Specific Water Quality Objectives in the State of California, 2003).

Interpretation of the copper criteria using a site-specific WER does not require a Basin Plan amendment, as stated in the comment, and therefore is not subject to CWC (California Water Code) section 13241. Nonetheless, the Regional Board prefers to incorporate the SSO in the Basin Plan to fully document and disclose the objective(s) as broadly as possible. A Basin Plan amendment is also desirable because the dissolved copper objectives, and narrative toxicity and pesticide objectives are linked in SIYB. The relationship among these objectives in SIYB should be described and documented in the Basin Plan if a SSO is developed for dissolved copper. The Basin Plan amendment would be subject to CWC section 13241.

Comment No. 41 **Comment ID:** 467

Comment: Second, NMMA and MOAA appreciate and support the Board's addition of language confirming that if the water quality objectives for dissolved copper in the Shelter Island Yacht Basin are modified in the future (e.g., by the adoption of a site-specific objective), the numeric targets stated in the TMDL and Basin Plan will be revised to reflect the new water quality objectives. Resolution No. R9-2004-0002, Appendix A at A-3. We believe that this is an appropriate acknowledgement of the beneficial work that has already been performed to develop a Water Effects Ratio for copper in this water body, and of the potential for those or other efforts to result in

adoption of site-specific objectives for dissolved copper in the Shelter Island Yacht Basin. Consistent with our commitment to apply the best science to all questions of environmental stewardship, NMMA and MOAA support these efforts and will continue to monitor their progress.

Submitted By: NMMA and MOAA

Response: Comment noted.

Comment No. 42 **Comment ID:** 499

Comment: We endorse the proposal's recognition that determinations on whether too much copper going into a water body may be more cost effectively made by using the Biotic Ligand Model (BLM). The BLM is essentially a modeling tool that relies upon quantitatively known relationships between dissolved materials in water and impact upon aquatic life to develop statistically predictive models that can accurately predict impacts for a range of water bodies with various and varying conditions once certain baseline characteristics are ascertained. The BLM is much quicker than the currently required water effects ratio studies that must be done, taking only one year at most. And it is far less expensive. For example the South San Francisco Bay WER cost a $2.5 million. A comparable BLM is estimated to be $250,000 - $300,000. In August 2004 the US EPA held a meeting with a group of scientific experts who have extensive experience with the Biotic Ligand Model. The purpose of the meeting was to outline the necessary studies to prove the validity and implement the BLM for marine waters. The BLM has already been accepted by the US EPA for fresh water for developing site-specific water quality criteria. It is likely that the BLM with determine, just as the WER performed in January did, that copper toxicity does not occur until concentrations exceed 6.0 µg/L or more. That is higher than the average concentrations measured in SIYB as indicated in the TMDL.

Submitted By: North American Marine Antifouling Coatings Work Group

Response: This comment refers to the development of a site-specific objective at SIYB. There has been some expressed interest by stakeholders in developing an SSO for SIYB. The Regional Board will work with interested stakeholders to consider the development of an SSO during the implementation phase of the TMDL. Currently, some data have been collected by stakeholders that might be used to develop an SSO using the WER method. However, development of an SSO need not rely on the WER method. Other scientifically defensible methods such as the Biotic Ligand Model (BLM) might be appropriate. Interested stakeholders are encouraged to coordinate with one another and the Regional Board on efforts to develop an SSO. An important first step in this process is for interested persons to develop a workplan for conduct of such a study with oversight from the Regional Board and in cooperation with other stakeholders.

Comment No. 43 **Comment ID:** 335

Comment: EPA recognizes that some stakeholders may have expressed interest in developing site-specific objectives for dissolved copper in SIYB prior to TMDL approval. There are no federal requirements for site-specific objectives to be completed before a TMDL be approved. A similar TMDL has been established in Newport Bay, it utilizes dissolved copper numeric targets (both acute and chronic) as set forth in the California Toxics Rule. The Santa Ana RWQCB has not initiated plans for dissolved copper site-specific objectives as part of their triennial review. Given that dissolved copper concentrations range from 8 to 12 µg/L in SIYB and the requirements for significant reductions of copper loading as outlined in the TMDL, it is vital for the Regional Board to adopt this amendment and proceed to consider strategies and measures to attain water quality standards.

Submitted By: U.S. Environmental Protection Agency

Response: The Regional Board agrees that it is vital to adopt the TMDL Basin Plan amendment and begin the process needed to reduce copper discharges into SIYB.

Although SSOs for dissolved copper in SIYB may be developed and eventually added to the Basin Plan, this action should not be done in lieu of, or in advance of, adoption of the proposed TMDL Basin Plan amendment. Rather, the Regional Board should adopt the TMDL Basin Plan amendment first to ensure that the gradual copper load reductions required by the TMDL are initiated. The proposed 17-year compliance schedule can readily accommodate the conduct of SSOs studies, which could occur concurrently with the load reductions. In the event that SSOs are eventually adopted for SIYB, the only anticipated impact is that the magnitude of the required load reductions may be reduced and water quality objectives will be met sooner.

Comment No. 44 **Comment ID:** 564

Comment: Paragraphs 4 and 5 speak to beneficial use impairments and water quality objectives. The TMDL analysis is bereft of information specific to SIYB.

The most fundamental technical deficiency appears to be the failure of the draft TMDL to use a water effects ratio (WER) or "translator" to determine the water quality objectives. The draft TMDL ignores the fact that the California Toxics Rule (CTR) water quality criteria for dissolved copper sets concentrations for dissolved copper based upon lab water. EPA Guidelines repeatedly provide that the numbers in the CTR table should be multiplied by the WER for the receiving water in question. The draft TMDL recognizes the desirability and indeed superiority of having a site-specific criteria, however, the draft TMDL interprets site-specific criteria to require lengthy and expensive studies directed and paid for by the discharger. Yet, numerous EPA and SWRCB Guidelines recommend the use of WERs by the Regional Boards to establish appropriate water quality objectives. See, e.g., U.S. EPA Water Quality Standards, Establishment of Numeric

Criteria for Privity Toxic Pollutants for the State of California (the "California Toxics Rule") 65 Fed.Reg., May 18, 2000, pp. 31690-91; U.S. EPA Interim Guidance on Interpretation and Implementation of Aquatic Life Criteria for Metals, May 1992, p. 1.

The peer reviewer, Professor Bruland, articulated this concern very well: "Another factor of concern in this report is the lack of any Cu speciation data or WER studies. The report acknowledges that the toxicity of copper is related to the free Cu 2+ or [Cu'] and not the total dissolved Cu concentration . . . Copper bound or chelated with organic ligands is not toxic. Without any data on the extent of organic chelation of dissolved Cu and the levels of free [Cu 2+], it is difficult to ascertain whether these extreme steps are necessary. An approach that many estuarine systems are using involves the use of a water effects ratio or WER as a method to evaluate a reasonable numeric target concentration from the water quality criteria. For example, a WER of 2.2 combined with the water quality criteria of 3.1 µgCu\L would yield a numeric target of 6.8 µgCu\L. This might be a more reasonable numeric target for the Shelter Island Yacht Harbor, particularly since the only way to reduce the Cu sources from passive leaching and in-water hull cleaning by 90% would be to ban all the boats from the yacht harbor." (Draft TMDL, pgs. 156-157.)

Submitted By: Shelter Island Yacht Basin Group

Response: The current WER value of one is appropriate for use in the equations that define the CTR saltwater copper criteria. Until sufficient information is available to justify a change, the value of one is appropriate for all CWA uses, including the SIYB TMDL. Once data are available to change the WER, the State has the discretion to interpret the CTR copper criteria based on a site-specific WER. Thus, the lack of a WER study does not negate the SIYB copper TMDL.

The availability of a technically valid WER is not sufficient reason alone to incorporate it into the CTR equation. Potential negative impacts to downstream beneficial uses, the presence of threatened and/or endangered species and any toxicity due to copper will all need to be investigated before implementing a modified WER. This is likely to involve full public review. While adoption of a Basin Plan Amendment to incorporate a site-specific objective based a modified WER is not mandatory, the Regional Board would pursue this course for reasons discussed in comment 574.

Comment No. 45 **Comment ID:** 364

Comment: Bioavailability of Copper in SIYB.

Not all varieties or forms of copper are equally toxic. The draft TMDL assumes that passive leaching allows all copper to be biologically available. The technical peer reviewer, Dr. Bruland, as well as the technical TMDL itself, acknowledges that only specific forms of copper are toxic. The draft TMDL states "Copper toxicity is most closely related to the concentration of free ions and weak inorganic complexes, as compared to total or dissolved copper concentration" (page 160).

The free ionic copper ($CU2^{+}$) is believed to cause toxicity to aquatic organisms. Free ionic copper is generally a very small fraction of dissolved copper which is, itself, a small fraction of total recoverable copper. Only under rare conditions, such as very low pH (as occurs in acid drainage from mining operations), will free ionic copper constitute a significant portion of the total recoverable copper.

Several water chemistry factors are known to affect the bioavailability and toxicity of copper, including alkalinity, pH and dissolved organic carbon.

"Waterborne metals generally show their greatest toxicity to aquatic organisms in soft water of low alkalinity, low pH and low dissolved organic carbon. This relationship can be explained by the usual conceptual model of metal toxicity, which considers the free ion to be the toxic form of the metal. In essence, waterborne free metal ions must adsorb to the gills before they can either exert their toxic effect at the gill surface directly, or pass through the gills on their way to internal sites of toxic action. Any process that prevents initial adsorption on the gill surface by reducing either the ambient free metal ion concentration, or the number of surface binding sites on the gill, will reduce toxicity of waterborne metals." (Playle, et al 1993).

Organic carbon naturally present in the seawater will bind with copper and form complexes that are not toxic.

"Binding of trace metal ions by dissolved organic matter in aquatic environments is important in controlling the chemical speciation and bioavailability of trace metals. " (Breault, et al, 1996).

a. Was any adjustment made to the TMDL to account for the binding characteristics of organic carbon on copper?

b. Was any measure of free ions, weak inorganic complexes, alkalinity, pH or dissolved organic carbon performed to adequately characterize the toxicity of copper in Shelter Island Yacht Basin?

EPA has long recognized the influence of these water quality factors. The national copper criteria includes a specific adjustment for the mitigating effects of hardness on toxicity and pH is regulated independently to reduce the occurrence of toxic conditions.

EPA has issued guidance that states:

> "When metals (such as copper) become complexed with elevated concentrations of dissolved organic matter, a reduction in the toxicity may occur, compared to laboratory water, which is low in organic matter." (EPA, 1992)

Specifically, EPA recommended:

> ". . the criteria should be adjusted upward for surface waters with TOC significantly above the 2 to 3 mg/L usually found in waters used for toxicity tests. " (EPA, 1985)

EPA repeated their recommendation more recently:

> "When the concentration of dissolved organic carbon is elevated, copper is substantially less toxic and use of Water-Effects Ratios might be appropriate. " (EPA, 1999)

At the time EPA made their initial recommendation, EPA had no specific method for adjusting the copper criteria. In 1992, there was insufficient data to calculate an appropriate dissolved organic carbon adjustment. That is no longer the case.

Submitted By: Shelter Island Yacht Basin Group

Response: The numeric target in the TMDL is equal to the CTR numeric water quality objective for dissolved copper for chronic exposure. No adjustment was made to the numeric target used in the TMDL to account for the binding characteristics of copper. The Regional Board has not conducted studies that measure free ions, weak inorganic complexes, alkalinity, or pH at SIYB. An "adjustment" to the TMDL could be made through the development of site-specific objectives (SSO) for dissolved copper at SIYB to replace the numeric target used in the TMDL. SSOs for copper in a marine environment are typically developed using WER studies. The State Board has issued a draft report dated June 2003 titled "Compilation of existing guidance for the development of site-specific water quality objectives in the State of California." This document should be reviewed before undertaking such a study.

Due to budget constraints, the Regional Board has no plan to conduct studies to determine a WER in the near term. Further, the Regional Board is not required to conduct such studies to adopt a TMDL. However, in the event that such studies are conducted and an SSO is adopted for SIYB, the draft Basin Plan amendment language was revised to include a method to recalculate the TMDL, allocations, reductions, and MOS, based on a new numeric target.

Comment No. 46 **Comment ID:** 459

Comment: Finally, Board staff presumes to define what constitutes a "significant" revision versus an insignificant revision. Apparently, the public is only allowed to comment on the former. However, many of the changes deemed insignificant by Board staff are, in fact, highly significant. For example, Board staff now claims that a sediment study is required in order to adopt a WER. EPA's official guidance manual on WER describes no such requirement nor does the California State Implementation Plan. This new requirement, found on page 81 of the Technical Report, is not included among the

sections eligible for public comment. Since it constitutes a major change in state and federal policy guidance, it cannot be excluded from the opportunity for public comment.

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest

Response: The comment correctly points out that language addressing sediment toxicity was added to the discussion of a WER. Specifically, the text stated that "…the WER study being undertaken by the marina owners/operators only addresses copper toxicity in the water column. The study does not address toxicity to benthic organisms from copper in pore water in sediment."

The new language was informational and did not materially change the Technical Report. Nonetheless, the language was supposed to be underlined in the October 2004 version of the Technical Report, and subject to comment by interested persons. The underlining was inadvertently omitted. Because interested persons did not have a chance to comment on this language, it has been deleted from the Technical Report.

The Regional Board does not intend to add any new requirements to a WER study, if conducted, nor does it mean to suggest that a WER study would not be accepted by the Regional Board if it does not have a sediment component. However, if a site-specific objective for copper in the water column based on a site-specific WER is applied in SIYB, the objective must also be capable of meeting the narrative toxicity and pesticide objectives in sediment. Sediment studies will be needed to determine if a revised water quality objective for copper in the water column also meets the narrative toxicity and pesticide objectives in sediment.

Comment No. 47 **Comment ID:** 300

Comment: New water quality and toxicity tests support the use of a Water Effects Ratio (WER) for Shelter Island Yacht Basin (SIYB).

As explained at the December 10, 2003 Board hearing, the SIYB Group believes that it is appropriate to use site specific criteria for SIYB. AMEC Earth and Environmental of San Diego and Dr. Paul Boothe of Albium Environmental were retained to collect water samples from SIYB and perform a study to determine the Water Effects Ratio (WER) for copper. On January 8th, 2004, water samples were collected from SIYB and the WER study was initiated the following day. Results from the study indicate that the WER ranged between 2.84 and 3.24. If the WER is applied to the current water quality criteria for chronic exposure to dissolved copper of 3.1 µg/L, the NPDES permit limit for Total Recoverable Copper will fall between 8.8 µg/L and 10.0 µg/L.

Results from the Shelter Island Yacht Basin WER study are consistent with those recently used to amend the water quality objective for copper in South San Francisco

Bay. EPA and the Regional Board will require additional studies to confirm the initial findings; however, it appears that it will be possible to develop a more appropriate site-specific water quality objective (for dissolved copper) or permit translator (for total recoverable copper) in the Yacht Basin.

Preliminary results indicate that the site-specific permit limits for copper may be approximately 300 percent higher than EPA's recommended default criteria for dissolved copper. If so, the proposed Total Maximum Daily Load (TMDL) must be substantially revised to reflect this new information.

At the public hearing on December 10, 2003, RWQCB Staff stated that it was inappropriate to consider revising water quality objectives as part of the TMDL adoption process. However, on December 31st, U.S. EPA published a draft revision of the recommended water quality criteria document for copper. So the numeric targets for dissolved copper of 3.1 µg Cu/L (chronic exposure) and 4.8 µg Cu/L (acute exposure) will change within a year. Once the new criteria are finalized, it will be necessary to update the Water Quality Control Plan (aka: "Basin Plan") and the TMDL anyway. In less time than it will take EPA to receive and respond to public comment on the new U.S. EPA draft guidance, we can continue and complete the scientific studies needed to develop a site-specific water quality objective or permit translator for copper in Shelter Island Yacht Basin.

A Summary of the January 8, 2004 Sampling and WER Study is attached as Exhibit A.

Submitted By: Shelter Island Yacht Basin Group

Response: The Regional Board agrees that it may be appropriate to develop SSOs for SIYB based on site-specific environmental conditions. A proposed Basin Plan amendment to establish SSOs for SIYB must be developed in accordance with established procedures and sound scientific principles. Keep in mind that SSOs must address copper toxicity in sediment in SIYB and be protective of benthic marine habitat. A WER study only addresses toxicity in the water column. Developing and adopting SSOs would also require studies to determine the toxic effects (if any) on the benthic community from copper in sediment and dissolved in sediment pore water.

The Regional Board's planning document for the Basin Planning program is the "Prioritized List of Basin Plan Issues for Investigation from September 2004 to September 2007." This list was adopted by the Regional Board as part of the Triennial Review of the Basin Plan, completed on September 8, 2004. Although a basin planning issue titled “Water Quality Objectives for Copper at Shelter Island Yacht Basin” was prepared and considered by the Regional Board as part of the Triennial Review, the issue did not rank high enough to receive funding for investigation in the next three years. However, funding for the Basin Plan amendment process from outside the Regional Board by persons interested in developing SSOs for dissolved copper in SIYB could accelerate the process.

Regarding the status of the existing water quality objectives, in December 2003, the USEPA issued the Draft Update of Ambient Water Quality Criteria for Copper (EPA-822-R-03-026), containing updated freshwater and saltwater aquatic life criteria for copper. These criteria revisions are based in part on new data that have become available since USEPA's last comprehensive criteria updates for copper. For marine organisms, the proposed criteria are more stringent than the current water quality objectives. Should the criteria be adopted and eventually promulgated as numeric water quality objectives in the CTR, the new values would be 1.9 µg/L for chronic exposure, and 3.1 µg/L for acute exposure. Should these criteria be promulgated and eventually adopted in the CTR, these values will be established as new water quality objectives. A WER that is developed for SIYB would be applied to the new objectives to establish SSOs. Because the proposed criteria are lower (more stringent) than the existing objectives, the new SSOs would likewise be lower than SSOs adopted using the current objectives.

The proposed Basin Plan amendment has been revised to include a method for recalculating the TMDL, MOS, allocations and reductions in the event that the water quality objective for dissolved copper changes, due to either a revision of the copper criteria by USEPA, or to development of SSOs.

Comment No. 48 **Comment ID:** 442

Comment: The Regional Board staff acknowledged the existence of newly developed site-specific WER data for SIYB but, once again, deferred consideration until some unspecified later date (see pg. A-3, 17, & 30). Staff claims that a Basin Plan amendment is required to adopt a WER (see pg. 81). No such requirement is specified in the California Toxics Rule. On the contrary, a WER may be applied to a dissolved criteria to calculate an appropriate dissolved or total-recoverable permit limit for copper (see 62 Fed. Reg. 150 @ pg. 42173-42174). The State Implementation Plan (SIP) guidance is inconsistent with Section 13241 of the California Water Code which requires all factors affecting water quality to be evaluated at the time objectives are adopted.

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest

Response: The comment is correct that the CTR allows WERs to be applied to saltwater copper criteria because the WER is built into the formulas that constitute the CTR saltwater copper criteria. The criteria can be interpreted by using a WER that is different from one after the completion of appropriate investigations. This is not to be considered an SSO, does not require a BPA and therefore is not subject to section 13241 of the California Water Code (CWC).

However, the Regional Board prefers to formally amend the Basin Plan to include any SSO derived for SIYB from a WER investigation. One of the chief regulatory functions of the Basin Plan is to formally document the applicable water quality objectives and how

they are implemented in the San Diego Region. Amending the Basin Plan will also ensure that potential negative impacts to downstream beneficial uses, the presence of threatened and/or endangered species, the application of the State anti-degradation policy and any toxicity due to copper will be investigated before implementing a SSO modified by a WER. These elements come from the USEPA Interim Guidance, 1994 and from the State Board's Compilation of Existing Guidance for the Development of Site-Specific Water Quality Objectives in the State of California, 2003. Additionally, if the CTR is interpreted with a site-specific WER in SIYB, the criteria must ensure compliance with the narrative toxicity and pesticide objectives in the Basin Plan. If the Basin Plan is amended, the requirements of section 13241 of the CWC must be met.

Finally, the Basin Plan amendment process provides a good public forum for the Regional Board to consider adoption of a site-specific objective in SIYB that involves participation by Regional Board members and stakeholders in the decision making process. The Regional Board must comply with the California Environmental Quality Act (CEQA) when the Board amends the Basin Plan. The CEQA process requires the Regional Board to analyze and disclose the potential adverse environmental impacts of a Basin Plan amendment it is initiating or approving. The Regional Board's Basin Plan amendment process must consider alternatives, develop proposals to mitigate or avoid environmental impacts to the extent feasible, and involve the public and other public agencies in the evaluation process. The Basin Plan amendment process also provides for the scientific basis of the site-specific objective to undergo external peer review before adoption by the Regional Board.

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5. SCIENTIFIC BASIS FOR THE TMDL

The comments in this section address the scientific basis for the TMDL and pertain mostly to the Technical Analysis in section II, the various technical appendices, and the data and studies upon which the TMDL is based.

Comment No. 49 **Comment ID:** 572

Comment: "Clean Water Act Section 303(d): SIYB was placed on the CWA 303(d) list of impaired waters in 1996 due to elevated levels of dissolved copper in the water column." (see pg. 7 of Technical Report)

- There were no valid water quality objectives for copper in place in 1996;
- California's Inland Surface Waters Plan was repealed 3 years earlier;
- The Calif. Toxics Rule was not approved until 1999, one year after the 303(d) list.

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest

Response: Valid dissolved copper objectives in 1996 were contained in 40 CFR 131.36 and incorporated into the Basin Plan by reference. Nonetheless, the point made in the comment is moot because the water column in SIYB exceeds the existing dissolved copper water quality objective. Therefore, SIYB is properly designated as a water quality limited segment.

Comment No. 50 **Comment ID:** 580

Comment: "Water quality objective violations. Elevated dissolved copper concentrations in SIYB have been sustained over time through continuous passive leaching of copper from anti-fouling paints. Sampling surveys conducted by the Regional Board in SIYB during 1994 and 2000 documented water column concentrations as high as 12 µg Cu/L and 8 µg Cu/L, respectively." (see pg. 144 of Technical Report).

- The values reported are maximum concentrations from individual sample locations within SIYB. They are not the average values that would normally be used to evaluate compliance with a water quality objective or permit limit (see pg. 153 of Technical Report).
- If samples were drawn from locations immediately adjacent to boats, they are not representative of the entire waterbody (SIYB).

- EPA estimates that the concentration of dissolved copper near the surface may be twice as high as the concentration found nearer the bottom. (see EPA guidance on interpreting and implementing metals criteria, October, 1993.

- We have not had an opportunity to review the original sampling logs, lab reports, QA/QC data or method detection levels (MDLs) associated with the samples in question. We are unable to ascertain the accuracy and reliability of the reported values until all of the evidence that the Regional Board relied on is made available to the public.

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest

Response: This comment refers to two studies conducted in SIYB by the Regional Board. These studies and any related information are available for review at the Regional Board's office during normal business hours.

The first study was conducted by the Regional Board in 1993 to investigate the impacts of underwater hull cleaning (McPherson and Peters, 1995). Sampling for dissolved copper occurred near a vessel hull at depths of 3 and 12 feet. Concentrations ranged from 6 to 16 μg/L, with an average of 12 μg/L.

The second study was conducted by the Regional Board in 2000 as a sampling survey of water column concentrations in SIYB. In this sampling survey, the values reported for each of the eight stations at SIYB represent average concentrations based on numerous samples obtained from each sample station. Samples were not taken at locations immediately adjacent to boats. A grab method was used to obtain subsurface water column samples.

Comment No. 51 **Comment ID:** 366

Comment: Lack of Data to Support the Technical Analysis.

The technical analysis does not contain all the data upon which it relies. The federal Data Quality Act of 2002, OMB Regulations, and EPA Regulations (5360.1-A2) require EPA (and delegated states such as California) to specify the data quality objectives (DQOs) needed to ensure that the data used is adequate to make the related regulatory decision. The key element of these laws and regulations is that they require the entire process to be transparent and reproducible. Many parts of the draft Report's technical analysis rely on data from very many studies that has not been shared with the SIYB Group or the rest of the general public.

Submitted By: Shelter Island Yacht Basin Group

Response: All of the data relied upon for the technical analysis is publicly accessible and all information relied upon is referenced in the Technical Report. Any information that was relied upon can be reviewed in the SIYB files. These files are available at the Regional Board office for inspection and copying. Please see our website for information on how to schedule a file review.

Comment No. 52 **Comment ID:** 436

Comment: There are serious errors in the TMDL calculations (pg. A-7 and pg. 133). Referring to the TMDL equation, text states that "C_1=average background concentration of copper measured in the area of San Diego Bay adjacent to SIYB, expressed as total copper, (0.05 µg/L)." The value of 0.05 µg/L is not supported by any evidence cited by the Regional Board staff.

Input variables for the TMDL Box Model are described in the Technical Report:

"C_1 = This represents the concentration of total copper in ambient seawater, or background concentration levels outside the control volume. Background copper concentrations in San Diego Bay were also measured by composite sampling by SPA WAR on two occasions, August 2000 and September 2001. Composite measurements for total copper were 0.69 µg/L and 0.39 µg/L, respectively, for sampling Box 9 (Bay adjoining SIYB). For the input variable C_1, the average of the two values, 0.05 µg/L was used. " (pg. 133)

The average value of 0.69 µg/L and 0.39 µg/L is 0.54 µg/L not 0.05 µg/L. Therefore, the background concentration used as an input to the TMDL model underestimates the true value by more than one order of magnitude.

Review of printouts from the spreadsheet calculations indicate that C_1 = 0.5 µg/L. Therefore, the table values shown on pages 139 and 140 are also inconsistent with the narrative text on pages A-7 and 133. The inconsistency makes it impossible to ascertain exactly how the calculations were actually performed.

Submitted By: **B**ay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest

Response: The value of 0.05 µg/L for background copper concentration on page 133 is a typo and has been corrected in the Technical Report. As the commenter indicates, the value should be 0.5 µg/L. This is the value that was used in TMDL calculations.

Comment No. 53 **Comment ID:** 490, 491

Comment: Attachment A to Resolution No. R9-2004-002, Appendix D, pg. A-7. The TMDL model underestimates the ambient background copper concentrations by a factor of at least two and thereby overestimates the probability of attainment of the numeric objective. Appendix D describes the method for recalculating the SIYB TMDL for dissolved copper, in the event that the water quality objectives are modified in the future. However, the formula continues to use 0.05µg/L as background level (Attachment A, Appendix D, p. A-7) for dissolved copper in the water column. Elsewhere the number used is 0.5 µg/L. Both 0.05 µg/L and 0.5 µg/L are contrary to the figures given for background level in the technical report.

Chapter II, Section 2 discusses copper levels in San Diego Bay. A 1998 U.S. Navy Study evaluated dissolved copper concentrations throughout San Diego Bay and found over half the samples exceeded the numeric water quality objective of 3.1 µg/L. Other studies found levels ranging from 2.8 to 5.8 µg/L. Water from San Diego Bay mixes with water in SIYB due to tidal action. The only sample identified as coming from San Diego Bay just outside SIYB averaged 1.5 µg/L of dissolved copper. This is thirty times the 0.05 ug/L level found at page A-7 and three times the 0.5 µg/L level if that is the intended number for background for the TMDL calculation. If water that will enter SIYB from tidal action averages 1.5 µg/L, the assumption underlying the TMDL in Appendix D to Attachment A is wrong.

The TR asserts "When each responsible party has achieved its required load reduction, water quality standards for the impairing pollutant are expected to be restored in the receiving waters." (TR Chapter II, Section l, p. 9.) Because the water that comes from tidal action is three times (or more) greater than 0.5 µg/L, the load reduction calculated in the TMDL cannot be achieved.

Submitted By: Shelter Island Yacht Basin Group

Response: The value of 0.05 µg/L for background copper concentration expressed on page A-7 has been corrected. As the commenter indicates, the value should be 0.5 µg/L, as expressed elsewhere in the document. This is the value that was used in TMDL calculations.

It was assumed that the commenter was referring to Figure A6.1, which contains copper values measured by the Regional Board at SIYB. However, the values used to generate this figure were not used to characterize background copper levels. Instead, data collected by Space and Naval Warfare Systems (SPAWAR) was used. This collection effort was specifically designed to provide distribution data for salinity and copper in San Diego Bay. Sampling occurred across several portions of the Bay. For each region of the Bay, continuous measurements and composite samples were collected for salinity and copper, as well as other constituents. The measurement techniques were thorough and comprehensive, and therefore used to characterize background copper levels.

In contrast, the copper values measured by the Regional Board, shown in Figure A6.1, were not used in the background calculations. They were included in the Technical Report solely to illustrate the concentration gradient across the longitudinal direction of SIYB. The measurement techniques were significantly different from that used by SPAWAR, and therefore the data was not included in the calculations.

The US Navy study mentioned by the commenter cites copper concentration for various locations in San Diego Bay, including the South Bay, where there is little tidal flushing. In contrast, the data that was used for TMDL calculation was limited to the North Bay, specifically in the vicinity of SIYB. Because this area is near the mouth of the Bay, there is much greater tidal flushing and subsequent lower copper values.

Since background copper concentration is believed to be approximately 0.5 ug/L, the load reductions specified in the TMDL can be achieved.

Comment No. 54 **Comment ID:** 501

Comment: As to actual toxicity for the organisms in SIYB, the Technical Report indicates that this would occur for some beginning at the level of 5 µg/L for chronic exposures. It also states that samples were taken at various concentration levels of copper in SIYB and that indeed toxicity was found in organisms at the higher levels. But it also notes no toxicity was found at the lower concentration stations. More important, the Technical Report also states that even the toxicity found at the high concentration station (8 µg/L), the toxicity could not be attributed to copper. ("While the results of this test showed that toxicity did occur at the high concentration station, the test does not identify the cause of the toxicity." Emphasis added. TR at page 17). Here again there is no evidence showing that copper at the levels found in the SIYB create any problems. The high concentration levels of copper at the station in question were there because vessels were moored there; these vessels presence have a number of impacts on the water in which they sit that could as or more readily explain the toxicity in nearby organisms, such as petroleum products; yet copper is singled out as the cause. Indeed, a Seagrant publication on this very issue, "Environmental Impacts of Pleasure Craft Oil Spills with Special Reference to Southern California Coastal Marinas", Johnson, Nov. 1998, discusses the very types of toxicity presented in the TMDL. At a minimum, the absence of a demonstrated cause and effect relationship make it difficult to determine the degree of copper reduction necessary to restore the harbor to good health, and raises a question as to the Board's ability to determine scientifically when that restoration has been accomplished.

Submitted By: North American Marine Antifouling Coatings Work Group

Response: The purpose of this toxicity test was to confirm that toxicity is occurring at the high concentrations observed in SIYB. Testing was not conducted to determine the actual cause of the toxicity. While the cause of the toxicity may be identified using tests

such as a Toxicity Identification Evaluation (TIE), these tests tend to be costly, and were not performed on these samples.

The toxicity testing discussed in the comment correlates toxicity with high copper concentration in SIYB. It does not show that copper is the agent that caused the toxicity in the high copper concentration sample. Nor does this study alone link copper to beneficial use impacts. However, this and other scientific studies conducted at SIYB collectively indicate that there are adverse impacts to the aquatic life at SIYB resulting from elevated copper concentrations.

Elevated copper concentrations in the basin are associated with adverse affects on biota including:

1) Absence of copper sensitive phytoplankton genera in SIYB;
2) Presence of copper tolerant phytoplankton genera in SIYB;
3) Decrease in species diversity paralleling increases in copper concentrations from entrance to interior of SIYB;
4) Rapid accumulation of copper in mussel tissue proportional to copper concentrations in the water column in SIYB;
5) Some copper concentrations in sediment from SIYB exceeded "Effects Range Low" level above which the incidence of probable biological effects is 29 percent;
6) Some copper concentrations in sediment from SIYB exceeded the "Effects Range Medium" level above which the incidence of probable biological effects is 84 percent;
7) Developmental toxicity observed in mussel *Mytilus edulis* taken from interior of SIYB; and
8) Toxicity testing of sediment from SIYB yielded observed toxicity.

Comment No. 55 **Comment ID:** 313

Comment: In addition, RBOC questions the conclusion that has been made that the levels of copper found in the tissues of sea organisms transported into the basin necessarily equates to the levels of contamination in the water - especially since this appears to be a fundamental basis for the proposed action.

The conclusion is far from certain, in light of the report of the Environmental Bureau of Investigation that the levels of copper found in sea animals do not necessarily equate to the levels of contamination in the water.

In addition, it is being assumed that the levels of copper in the basin are above standard levels and that, therefore, marine life must be suffering. However, there has been no actual study to determine if this is accurate.

It has also been stated in the public workshops that there have been no adverse effects on marine life measured in the Shelter Island Yacht Basin. This is not a sound basis for the

proposed action, especially since the basin was placed on the list of impaired waters in 1996.

Submitted By: Recreational Boaters of California

Response: Numerous studies have documented elevated levels of dissolved copper at SIYB that exceed water quality objectives. Water quality objectives are based on water quality criteria set by USEPA to protect marine aquatic life from toxicity. Additional studies at SIYB have linked impacts on aquatic life with elevated copper levels.

In a 1980 study, investigators found that phytoplankton genera considered sensitive to copper were absent at SIYB, while copper tolerant genera were present (Krett, 1980). Another study documented a decrease in species diversity at SIYB that paralleled an increase in copper levels from SIYB's entrance towards the moored vessels (Johnston, 1990). In 1996, a study was conducted in which mussels were transplanted from a less contaminated site in San Diego to SIYB (VanderWeele, 1996). Researchers found that the mussels rapidly accumulated copper in tissues to a degree that was proportional to concentration levels in the water column. Results from the State Mussel Watch Program also documented elevated copper levels in transplanted mussels at SIYB in 1987 and 1993 (State Board, 1995). Mussels are commonly used as biological indicators of water quality.

Comment No. 56 **Comment ID:** 360

Comment: Sampling Methods and Data.

The draft TMDL indicates that 93 percent of the copper enters SIYB from copper-based antifouling paints. The sampling conducted by the RWQCB was collected at seven stations and indicated concentrations are a function of distance into SIYB. Dissolved copper rapidly becomes non-toxic after it moves a few inches from the hull. As soon as it encounters and binds with organic carbon in the water column, it is no longer bioavailable.

a. Was proximity to boat slips considered in choosing the sampling location?
b. How close to boats were samples collected?
c. Was sampling conducted throughout the water column to provide an indication of concentrations throughout the Basin and at depths within the water column?
d. Was there a gradient between samples collected near the surface and samples collected near the sediments?
e. The draft TMDL and the November workshop referenced data collected by the U.S. Navy. This data is not included in the draft TMDL. Was this data used in the development of the TMDL?

The draft TMDL indicates that some limited toxicity testing was performed, yet the toxicity test data is not provided for review.

Submitted By: Shelter Island Yacht Basin Group

Response: SIYB was listed as impaired in 1996, and the source analysis provided in the Technical Report lists a plethora of data and scientific studies showing evidence of impairment. It must be emphasized that the objective of the sampling surveys conducted by the Regional Board in 2000 was to confirm impairment status of SIYB, and was not meant to provide further evidence for listing rationale.

The sampling surveys conducted by the Regional Board did not address bioavaliability of copper in the water column at SIYB. Furthermore, the Technical Report does not indicate nor is there evidence that dissolved copper becomes nontoxic after it moves a few inches from a vessel's hull. The degree to which copper is bioavaliable to aquatic organisms after release into the environment through underwater hull cleaning at SIYB has not been quantified.

a. Proximity to boat slips was not considered in choosing sampling locations. The sampling locations were designed to provide a spatial representation of copper concentrations in SIYB.

b. The samples were collected at a variety of distances from boat hulls. The minimum distance from boat hulls was several feet. Since beneficial uses apply everywhere within a waterbody, the Regional Board could have taken samples much closer to the boat hulls.

c. Sampling was not conducted throughout the water column. All samples were taken at sub-surface levels.

d. Samples were not collected near the sediments.

e. Data taken by the Navy was not provided in full in the Technical Report. The data points that were used for TMDL development are provided and discussed in Appendix 3. The full data sets are available for review in the Regional Board office during normal business hours.

The toxicity tests discussed in the Technical Report are available for review in the Regional Board office during normal business hours. Toxicity tests were performed on the bivalve, *Mytilus edulis*, using water column samples taken at SIYB. Toxicity was observed on the samples taken from SIYB that exceeded the numeric water quality objectives for copper, indicating that copper is the toxic element. Further testing is needed to prove that the toxicity observed resulted from the elevated dissolved copper levels.

Comment No. 57 **Comment ID:** 566

Comment: Throughout the draft TMDL, results of water quality testing conducted by a number of different individuals and entities in different years and in different locations are used interchangeably to construct the TMDL analysis. For example, at page 31 of the draft TMDL, dissolved copper concentrations in San Diego Bay are described as being elevated based upon testing by four different individuals in 1994, 1995, 1996 and 1998. The draft TMDL states that a 1998 U.S. Navy study that took samples throughout San Diego Bay found that over half of the samples taken exceeded the numeric water quality objective of 3.1 µgCu\L. It goes on to cite a study that sampled dissolved copper concentrations in San Diego Bay from 1991 to 1993 which found levels that range from 2.8 to 5.8 µgCu\L, with an average of 3.8 µgCu\L. (Draft TMDL, pg. 31.) Yet, in the calculation to determine the loading capacity for copper in SIYB, the background concentration for copper was given as 0.5 µg\L. (Draft TMDL, pg. 148.) This value is attributed to a study conducted by the Navy (SPAWAR) apparently in 2002 that is listed in the references section as being "in preparation." If the data cited on page 31 were used to calculate the loading capacity of SIYB for copper (i.e., an average of 3.8, which exceeds the numeric standard of 3.1), the result of the calculation would be far different.

In layman's terms, if the copper levels in San Diego Bay average 3.8 or exceed 3.1 in more than half the samples taken over the years, it is obvious that the natural tidal flow will continue to import San Diego Bay water that already exceeds the numeric limit of 3.1 and SIYB will never be able to attain the 3.1 objective, even if every single boat in SIYB leaves.

Second, if the level of copper in San Diego Bay water is 3.2 ppb to 3.7 ppb, which is above the chronic numeric objective, normal tidal action will continue to allow this non-attainment Bay water to enter SIYB and we will never reach the numeric objective.

Submitted By: Shelter Island Yacht Basin Group

Response: The Regional Board disagrees that the background levels of copper in San Diego Bay near the mouth of SIYB exceed the dissolved copper criteria. Numerous studies were cited in the Technical Report showing elevated levels of copper above the numeric water quality objectives. The studies mentioned by the comment cite copper concentration for various locations in San Diego Bay, including the South Bay, where there is little tidal flushing. In contrast, the data that was used for TMDL calculations were limited to the North Bay, specifically in the vicinity of SIYB. Because this area is near the mouth of the Bay, there is much greater tidal flushing and subsequent lower copper values.

Data collected by SPAWAR were used to quantify background copper levels, and ultimately for TMDL calculation. This collection effort was specifically designed to provide distribution data for salinity and copper in San Diego Bay. Sampling occurred across several portions of the Bay. For each region of the Bay, continuous measurements and composite samples were collected for salinity and copper, as well as other

constituents. Because sampling occurred in distinct regions, only the data applicable to SIYB and the immediate vicinity was used for TMDL calculation. The measurement techniques were thorough and comprehensive, and therefore used for TMDL calculation.

In contrast, the copper values measured in the other studies, including the Regional Board's data, were not used for any background calculations. Data from other studies was not used because, as stated above, these measurements were for various regions in the Bay, most of which are not applicable for characterizing SIYB or the immediate vicinity. The measurements taken by the Regional Board were likewise not used for any calculations. They were included in the draft Technical Report solely to illustrate the concentration gradient across the longitudinal direction of SIYB. The measurement techniques were significantly different from that used by SPAWAR, and therefore the data were not included in the calculations.

Comment No. 58 **Comment ID:** 269

Comment: The Basin Plan Amendment and Technical Report for Total Maximum Daily Load (TMDL) for Dissolved Copper in Shelter Island Yacht Basin, dated October 24, 2003, states: "Copper-based antifouling paints have been banned on recreational vessels in Europe in Sweden, the Netherlands, and in Denmark."

The Netherlands had a ban on copper-based antifouling paints for recreational vessels, but this has since been removed. The removal of the ban is due to an opinion issued by The European Scientific Committee on Toxicity, Ecotoxicity and the Environment (CSTEE).

In that opinion, the CSTEE concluded:

"(1) The CSTEE was not convinced that the environmental quality standards (Maximum Permissible Risks [MPRs]) used by the Dutch authorities in the assessment were scientifically justified. This was based on two substantial concerns. First there was a lack of transparency in how data were selected for inclusion in the effects assessment. Second, there was no explicit account taken of bioavailability; yet this is of critical importance in considering the impact of metals on organisms in test systems.

(2) The CSTEE was of the view that risk assessment methodology used by the Dutch authorities was sound in principle, but suffered from a number of problems in application. First, there were the uncertainties associated with the effects assessment already specified above. Second, there were similar problems with exposure assessment in that uptake was not adequately addressed. Also there was inconsistency in the way that background was included in effects and exposure assessments. Moreover, there were difficulties in interpreting exposure calculations and we had concerns about the scientific basis of some of these data. Most of the risk assessments gave results of marginal concern, except when total copper in the environment, i.e. from all sources not just antibiofouling paints, was taken into account. We were not convinced that this approach,

involving total copper, was a sound basis for risk assessment of copper derived from a particular use.

(3) Because of all this uncertainty, the CSTEE was not convinced that the Netherlands has provided sufficient scientific justification to show that copper-based antifouling products present environmental risks. We recommend that the conclusions be revisited in the light of more up-to-date data and modern methodology currently being developed as part of a voluntary programme for the risk assessment of copper in the context of the Existing Substances Regulation."

It is clear that this international scientific body seriously questioned the basis for such a ban. The lack of scientific justification and the lack of measured bioavailability and toxicity is precisely why the ban has been lifted. The bans in Sweden and Denmark are also being challenged on similar grounds.

Therefore, we feel it is imperative that the Board consider these facts before they institute such a ban in the Shelter Island Yacht Basin (SIYB). Nearly identical scientific questions need to be addressed before such a ban is instituted through the SIYB TMDL.

A Water Effects Ratio (WER) study is being submitted for SIYB. This is a critical component to accurately understand toxicity or the lack thereof. Please require that the SIYB TMDL be corrected to consider the issues addressed by the CSTEE in the Netherlands and as presented in the submitted WER study.

Submitted By: North American Marine Antifouling Coatings Task Force

Response: According to Leigh Johnson of the University of California - Sea Grant Extension Program (personal communication in January 2005), the ban on copper-paints in the Netherlands has been reenacted.

The draft Technical Report and associated Implementation Plan were not based on enactment of a ban on copper-based antifouling paints. The Regional Board does not have the authority to enact a ban on a legally registered pesticide.

Studies by interested parties supporting the development and adoption of SSOs for SIYB, such as WER studies, may occur concurrently with actions by dischargers to meet compliance with this TMDL. If and when an SSO is adopted for SIYB by the Regional Board, the TMDL and allocations will be modified accordingly. However, it is likely that even if a copper SSO is developed for SIYB, significant reductions in copper loading will still be required in order to meet the new SSO and protect beneficial uses.

Comment No. 59 **Comment ID:** 334

Comment: Monitoring data demonstrates this waterbody has been impaired for more than 20 years and dissolved copper exceedances of applicable water quality standards

have been observed since 1994. Furthermore, water column and sediment toxicity have been observed in SIYB and provide substantial evidence of narrative standards violations as defined in the San Diego RWQCB Basin Plan. We hope the San Diego Regional Board will take action to begin to restore the water quality in SIYB and meet all designated beneficial uses. Indeed, the Regional Board has the legal obligation, pursuant to the Clean Water Act and federal regulations (40 CFR 130.7(c)), to establish TMDLs for 303(d) listed waters.

Submitted By: U.S. Environmental Protection Agency

Response: Comment noted.

Comment No. 60 **Comment ID:** 314

Comment: The proposed action is also based upon several assumptions that may in fact not be true. Perhaps the most significant is the assumption that the presence of copper has an adverse effect. The metal is considered an essential part of life, and is required for iron metabolism and other bodily functions.

Submitted By: Recreational Boaters of California

Response: Copper is a micronutrient for both plants and animals in low concentrations; however, it may become toxic to aquatic life at elevated concentrations. The toxicity of copper in high concentrations has been well documented in scientific literature. Studies show that the acute sensitivities of saltwater animals to copper ranges from 5.8 microgram/L for the blue mussel to 600 µg/L for the green crab (EPA, 1986). Also, phytoplankton and zooplankton are known to be sensitive to copper concentrations above 5 µg/L (EPA, 1986).

All assumptions that were made during the development of the TMDL are listed in the TMDL document in Appendix 1: Source Analysis Assumptions.

Comment No. 61 **Comment ID:** 604

Comment: There is no scientific evidence that this amendment will accomplish what the Board wants.

Submitted By: David H. Babcock

Response: The Regional Board disagrees with this comment and believes that achievement of the copper reductions specified in the TMDL will result in attainment of the numeric and water quality objectives.

Comment No. 62 **Comment ID:** 309

Comment: It has been brought to our attention, for instance, that at least one significant scientific study demonstrating that environmental protection can be accomplished with copper-based anti-fouling hull coatings has not been considered. That study is "Biofouling Resistance of Cupronickel - Basics and Experience", authored by W. Schleich and K Steinkamp, KM Europa AG, Division Marine Applications, Germany.

That study makes the affirmative statement that no detrimental ecological effects are expected when cupronickel is used as a design material and corrodes at normal corrosion rates. According to that study, the toxic ions that are released tend to generate organo-metallic complexes and become, therefore, biologically unavailable.

Submitted By: Recreational Boaters of California

Response: The Regional Board reviewed the above mentioned study (available at the Copper Development Association website at www.copper.org). The study itself did not look at ecological impacts of Cu-Ni alloys. Reference is made to only one study, conducted by the International Copper Association: The effect on aquatic environments of copper in cooling water discharges from copper alloy condensers, New York, April 1998. This study concluded that under normal Cu-Ni corrosion rates, no detrimental ecological effects are expected. However, the conditions described in the study, namely cooling water discharge, are significantly different from the environment in SIYB.

At SIYB several studies link elevated copper levels to adverse biological effects indicating that copper is biologically available. In a 1980 study, investigators found that phytoplankton genera considered sensitive to copper were absent at SIYB, while copper tolerant genera were present (Krett, 1980). Another study documented a decrease in species diversity at SIYB that paralleled an increase in copper levels from the Basin's entrance towards the moored vessels (Johnston, 1990). In 1996, a study was conducted in which mussels were transplanted from a less contaminated site in San Diego to SIYB (VanderWeele, 1996). Researchers found that the mussels rapidly accumulated copper in tissues to a degree that was proportional to concentration levels in the water column. Results from the State Mussel Watch Program also documented elevated copper levels in transplanted mussels at SIYB in 1987 and 1993 (State Board, 1995). Mussels are commonly used as biological indicators of water quality.

Nonetheless, there is discussion among the scientific and regulatory communities that copper toxicity in the water column is mitigated by the presence of organic materials that bind copper making it less bioavaliable and therefore less toxic to aquatic organisms. The degree to which environmental conditions mitigate toxicity of copper is site-specific and should be assessed based on site-specific studies. Preliminary investigations into this issue at SIYB have begun under the direction of the discharger community. The Regional Board expects to work with interested parties to coordinate in any development of site-specific studies to be used to develop SSOs at SIYB. These studies should occur

concurrently with TMDL implementation, which allows for a 17-year time period to achieve compliance.

Lastly, while significant reductions in the use of copper-based antifouling paints at SIYB will likely be required by the dischargers in order to meet the copper reductions, a complete phase out of copper-based paints at SIYB will probably not be necessary. The methods of compliance with the required copper allocations in the TMDL are ultimately determined by the dischargers.

Comment No. 63 **Comment ID:** 573

Comment: 4) "Beneficial Use Impairments: Marine and Wildlife beneficial uses of SIYB are threatened or impaired due to elevated levels of dissolved copper." (see pg. 7 of Technical Report)

- There is no direct evidence of beneficial use impairment (e.g. reductions in species richness or species abundance measured in SIYB).

- Dissolved copper is not toxic under the chemical conditions routinely found in SIYB (e.g. relatively high concentrations of suspended solids and dissolved organic carbon) See pgs. 30 & 155-157 of Technical Report, also pg. 22 of EPA's National Recommended Water Quality Criteria. This is a legal problem not a biological problem.

- There is no evidence to indicate that one of the two toxicity tests failed due to elevated copper concentrations; that is speculation. The toxicity test referred to in the text of the Technical Report (@ pg. 33) did not conform to any EPA approved method. The test method has not been validated for general use as specified by EPA guidance and procedures. Nor has the test species in question (Mytilus edulis, a mussel) been demonstrated to be a reliable surrogate indicator of water quality or beneficial use impairment through peer-reviewed and EPA approved field validation studies.

- As noted above, there is no direct scientific evidence that the dissolved copper concentrations routinely measured in SIYB are adversely impacting the richness or abundance of marine species in San Diego Bay.

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest

Response: The Regional Board disagrees that there is no direct evidence to support the conclusion that the beneficial uses for SIYB are impaired, or that dissolved copper in not toxic under the chemical conditions routinely found in SIYB. There is extensive data and

scientific studies demonstrating both the presence of elevated dissolved copper levels in SIYB, and the cause of these levels. The elevated copper levels have been clearly shown to result from the use of copper-based antifouling paints on recreational vessels moored in SIYB. Copper in antifouling paints is applied to boat hulls for the express purpose of killing marine fouling organisms. The draft Technical Report contains references to numerous scientific studies and monitoring surveys conducted over the past 20 years in SIYB that document exceedances of the numeric copper water quality objectives and narrative objectives for toxicity and pesticides. At the range of copper concentrations found in SIYB, the scientific literature documents adverse impacts of copper on aquatic organisms, particularly for bivalves, such as clams and oysters.

Although the comment states that dissolved copper is not toxic under the conditions routinely found in SIYB, a number of local scientific studies conducted in SIYB document elevated copper concentrations in sediment and mussel tissue, and sediment toxicity. Elevated copper concentrations in the basin are associated with adverse affects on biota including:

1) Absence of copper sensitive phytoplankton genera in SIYB;
2) Presence of copper tolerant phytoplankton genera in SIYB;
3) Decrease in species diversity paralleling increases in copper concentrations from entrance to interior of SIYB;
4) Rapid accumulation of copper in mussel tissue proportional to copper concentrations in the water column in SIYB;
5) Some copper concentrations in sediment from SIYB exceeded "Effects Range Low" level above which the incidence of probable biological effects is 29 percent;
6) Some copper concentrations in sediment from SIYB exceeded the "Effects Range Medium" level above which the incidence of probable biological effects is 84 percent;
7) Developmental toxicity observed in mussel *Mytilus edulis* taken from interior of SIYB; and
8) Toxicity testing of sediment from SIYB yielded observed toxicity.

That copper caused the toxicity observed in items 7 and 8 is unproven, but highly likely considering that the elevated levels of copper in SIYB and copper's known toxic effects on marine life. Nonetheless, this is a data gap that can be addressed with appropriate studies.

Comment No. 64 **Comment ID:** 568

Comment: Paragraph 7 summarizes the alleged sources of dissolved copper in SIYB. As set forth in our prior submission of 12/3/03, we disagree with the allocations and feel they are based on insufficient and inaccurate data and assumptions.

Submitted By: Shelter Island Yacht Basin Group

Response: The Regional Board disagrees with the statement that allocations are based on insufficient and inaccurate data and assumptions. The technical analysis presented in the Technical Report was based on the best available data. The Regional Board believes that the sources used in the analysis are reliable and sufficient for the intended purpose. All estimates and the methodologies behind them are thoroughly documented and explained in the text.

Comment No. 65 **Comment ID:** 563

Comment: Paragraph 2 of the draft Resolution states that amendment of the Basin Plan to establish and implement a TMDL for SIYB is necessary because the existing water quality does not meet applicable numeric water quality objectives for copper, or narrative water quality objectives for toxicity and pesticides. It goes on to state that the TMDL is necessary to ensure attainment of applicable water quality objectives and restoration of beneficial uses designated for SIYB. (Draft TMDL, pg. 7.)

We question these conclusions because there does not appear to have been adequate empirical data to support the conclusion that the beneficial uses for SIYB are impaired. The water quality conditions that exist in SIYB have not been adequately explored. There has been no attempt to consider the effects of organic carbon, pH, alkalinity, or dissolved total solids in SIYB. Without this, we have an incomplete picture of the water quality conditions that exist in SIYB. There have been no studies of species diversity or abundance in SIYB and only very limited toxicity testing briefly discussed in the draft TMDL, the raw data for which was not provided.

Submitted By: Shelter Island Yacht Basin Group

Response: There has been little data collected on various water column parameters in SIYB. However, there is adequate empirical data to support the conclusion that the beneficial uses for SIYB are impaired as discussed in Comment No. 63.

Comment No. 66 **Comment ID:** 509

Comment: The technical bases for the Draft Report are flawed.

SD Marina, in conjunction with other SIYB marina owners and operators, retained an environmental consultant, Tim Moore of Risk Sciences, to evaluate the Draft Report. Mr. Moore found several significant technical flaws in the report. SD Marina incorporates by reference the technical comments, dated November 10, 2004, submitted to the Regional Board by Risk-Sciences.

The company is particularly concerned because the implementation plan is based on the incorrect assumption that conversion to a copper substitute is feasible. A representative from a paint manufacturing industry group reported to the Regional Board in September

2004 that there are no readily-available alternatives to replace copper coatings at this time.

Submitted By: SD Marina LLC

Response: The Regional Board disagrees that the technical bases for the Technical Report are flawed. All aspects of the technical TMDL analysis were based on the best available data. The "…several significant technical flaws…" described by Mr. Moore have been addressed by the Regional Board elsewhere in this document.

The Regional Board disagrees with the statement that replacements to copper-based paints are not readily available. There are several products on the market, and according to a recent Sea Grant report (Johnson and Gonzalez, 2004), the field of alternative bottom coatings has expanded since 2002. More coatings are reaching the market and every major paint company is studying biocide-free paints. Whether readily available or not, the conversion of 81 percent of the boats in SIYB to alternative coatings is feasible within the 17-year compliance period of the TMDL.

Johnson, Leigh Taylor and Jamie Anne Gonzalez. 2004. Staying afloat with nontoxic antifouling strategies for boats. California Sea Grant College Program Report No. T-054. 21 pp.

Comment No. 67 **Comment ID:** 500

Comment: The Technical Report makes a number of findings and comments concerning the toxicity of copper for marine life. While we do not dispute that copper can be toxic to marine life, we do have some reservations about the degree to which this is occurring in SIYB. In our view, we do not think that spikes of the material should be the determinant of whether federal standard is exceeded. Instead the determination should be based upon the average in the water body. It is also noteworthy that the "adverse effects" of copper this information purports to show are not clearly demonstrated. The "genera considered to be copper sensitive" are assumed by the Report to be absent because of the copper, when other causes, such as increased activity in the harbor or other phenomenon such as changes in the water associated with the harbor activity might explain it. More importantly, to show that copper is even a candidate as a causative agent, the study would have to have included a base line with the genera present in the water before copper entered it. Similar criticisms can be made of the study showing a decrease in the biodiversity of the SIYB that parallel the increased levels of copper in the water column. The decrease in biodiversity might be more readily explained by the increased occupancy of the harbor by vessels and other activities and entrance of materials from them other than copper (e.g., petroleum products). But in any event, there is nothing that shows that the decrease is caused or even contributed to by increased copper. Finally, the study notes elevated copper levels in mussels that had been transplanted in the SIYB. But elevated copper levels do not automatically translate into toxicity for the organism. Indeed the fact that the mussels apparently thrived tends to show the opposite, if

anything. Here it is important to note that the Technical Report also states "There does not seem to be evidence of biomagnification [of copper] up the food chain." So the fact that a mussel has an elevated level of copper does not mean that it will be harmed by it or anything that eats it will be harmed by it, including humans.

Submitted By: North American Marine Antifouling Coatings Work Group

Response: Exceedances of the water quality objectives for dissolved copper have been documented over many years at SIYB. These exceedances do not represent "spikes." The water quality objectives for dissolved copper should be met throughout SIYB. Measuring compliance with the objectives using average values would allow chronic exceedance of the objectives in some locations, and thus, impacts to beneficial uses.

Numerous scientific studies have been conducted at SIYB that collectively indicate that there are adverse impacts to the aquatic life at SIYB resulting from elevated copper concentrations. None of these studies alone proves that copper concentrations in SIYB are causing toxic effects in aquatic organisms. However, in every study, toxic effects are linked to elevated copper concentrations while lack of toxicity correlates with water quality that meets the copper objective.

Comment No. 68 **Comment ID:** 368

Comment: There is an absence of specific scientific data regarding the presence and cause of copper in the basin. The TMDL project is based on faulty data. The "scientific method" used by the CRWQCB to determine the presence and the type of copper is flawed.

Submitted By: SIYB Stakeholders, Half Moon Anchorage, Seabreeze Books & Charts, Shelter Island Yacht Basin Group.

Response: The Regional Board disagrees with this comment. There are extensive data and scientific studies demonstrating both the presence of elevated dissolved copper levels in SIYB, and the cause of the elevated copper levels. The elevated copper levels have been clearly shown to result from the use of copper-based antifouling paints on recreational vessels moored in SIYB. The draft Technical Report contains references to numerous scientific studies and monitoring surveys conducted over the past 20 years in SIYB that document exceedances of the numeric copper water quality objectives. Furthermore, at the range of copper concentrations found in SIYB, the scientific literature documents adverse impacts of copper on aquatic organisms, particularly for bivalves, such as clams and oysters. Copper in antifouling paints is applied to boat hulls for the express purpose of killing marine fouling organisms. There have also been a number of local scientific studies specifically conducted in SIYB that document elevated copper concentrations in sediment and mussel tissue, SIYB water column and sediment toxicity, and adverse affects on biota.

All potential sources of dissolved copper loading to SIYB were considered and quantified in the Source Analysis section of the draft Technical Report. All available scientific studies and information were used to determine the amount of copper entering SIYB from each identified source. The vast majority (98 percent) of copper loading to SIYB comes from copper-based antifouling paints.

Comment No. 69 **Comment ID:** 495

Comment: The mainstay of the proposed implementation program is a reduction in passive leaching of copper from boat hulls by a phase-out of copper-based bottom paints. Because of all of the deficiencies in the technical analyses that lay the foundation for the proposed TMDL, the Regional Board is not in a position to determine that there is a high likelihood that the implementation program will attain water quality requirements. Such a determination is a key element of the Policy For Implementation and Enforcement of the Nonpoint Source Pollution Control Program issued this year by the SWRCB.

Submitted By: Shelter Island Yacht Basin Group

Response: The Regional Board disagrees that technical analysis is so deficient that it undermines the likelihood of success of the implementation program.

Comment No. 70 **Comment ID:** 333

Comment: We wish to offer our support for adoption of the Shelter Island Yacht Basin dissolved copper TMDL and proposed Basin Plan amendment and provide some comments for your consideration.

We have been working with San Diego RWQCB for several years on this TMDL for Shelter Island Yacht Basin (SIYB). We have reviewed and commented throughout the TMDL development and implementation planning process. The Basin Plan amendment is based on the legally applicable water quality standard as defined in the California Toxics Rule promulgated by EPA for the State of California in 2000. Based on the current contents of the SIYB TMDL and Basin Plan amendment, EPA would be able to approve it.

We will continue to work with the San Diego RWQCB to address all aspects of water quality and deploy the tools available to address impairments. Also, we will work with RWQCB regarding protocols required for WERs and/or SSOs, once the Basin Plan amendment has been approved and implementation has begun. Finally, the amendment outlines a good plan and we have confidence that it will result in attainment of water quality standards and restore beneficial uses.

Submitted By: U.S. Environmental Protection Agency
Response: Comment noted.

6. NUMERIC TARGETS AND SOURCE ANALYSIS

The comments in this section pertain to the numeric targets and source analysis found in sections II.3 and II.4 of the Technical Report. Comments pertaining to source analysis sediment issues are grouped in subsection 6.1.

Comment No. 71 **Comment ID:** 577

Comment: 6) "Numeric Targets. TMDL Numeric Targets interpret and implement water quality standards and are established at levels necessary to achieve water quality standards. The numeric targets for dissolved copper are 3.1 µg Cu/L for continuous or chronic exposure and 4.8 µg/L for brief or acute exposures." (see pg. 8 and Table 4-10 on pg. 14 of Technical Report)

- The numeric targets are not necessary to protect beneficial uses. Numeric targets fail to include several factors known to mitigate copper toxicity. (see pg. 145 of Technical Report).
- Regional Board's own Peer-Reviewer states that the conclusions are not scientifically or technically defensible until the other factors are considered (esp. the potential for sediment releases and the manner in which dissolved organic carbon binds with copper to significantly reduce the potential for toxicity; see pg. 155-160 of Technical Report).

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest

Response: Although the numeric target does not include several factors known to mitigate copper toxicity, it is protective of beneficial uses. The numeric target is equal to the chronic water quality objective for dissolved copper, and is designed to protect marine aquatic life from toxicity to copper. Until site-specific data on copper toxicity is developed, the numeric targets are appropriate for use in the TMDL. This topic is discussed in greater detail in Comment No. 140.

The peer reviewer may not have been aware that TMDLs and their implementation are adaptive and can go forward with uncertainty. The Basin Plan amendment language has provisions for revising the TMDL, allocations, and reductions in the event that the numeric targets change due to the development of site-specific information.

The potential for sediment to become a significant source of dissolved copper to the water column was identified in the Technical Report as an area of uncertainty that will need to be reexamined when better information on the exchange of copper between sediment and the water column is known. In this situation, the TMDL, and allocations may need to be revised, along with the implementation plan if appropriate.

Comment No. 72 **Comment ID:** 316

Comment: Yet another assumption is that most boats remain in their slips so the greatest levels of contamination come from natural leaching, to be exact, 98 percent. It does not follow that an "exact" percentage can be based upon assumptions.

Submitted By: Recreational Boaters of California

Response: The Regional Board agrees that an "exact" amount of copper discharging into SIYB is difficult to quantify and there are uncertainties within the calculations. For this reason, the load from antifouling paints is reported in the Technical Report as "approximately" 98 percent.

Comment No. 73 **Comment ID:** 257

Comment: You might be better off putting your energy into finding a way to monitor all the heads on all the vessels in our state harbors. I live in Dana Point and I know of several boats that don't have holding tanks for their heads - they pump directly overboard. Avalon harbor, in Catalina, has solved that problem by requiring all boats that come into the harbor to drop pellets into the heads, and flush. There is a huge fine for any leakage.

Submitted By: Barbara Merriman

Response: Comment noted. The Regional Board is developing TMDLs for bacteria indicators of human pathogens in Dana Point Harbor and other harbors in the region that are impaired for contact recreation and shell fish harvesting. This information will help to address sources of bacteria to those waters, and approaches to regulate those sources.

Comment No. 74 **Comment ID:** 485

Comment: Attachment A. p. A-9. Passive Leaching. There is no substantial evidence to support the finding that 93% of copper loading comes from passive leaching from boat bottoms and only 5% from underwater hull cleaning. A January 31, 2003 draft of the Technical Report concluded that the relative contribution of passive leaching and underwater hull cleaning were vastly different than the current TMDL. The earlier draft concluded that passive leaching contributes 56% of the load of copper. The September, 2003 draft revised it to 93%, a tremendous increase. Fifty-six percent (56%) is consistent with the finding of the PRC study done for the RWQCB dated December 6, 1996. The PRC Report is one of the source documents relied upon in the TR. (See, e.g., TR at p. 18.) PRC found annual copper loading to San Diego Bay from in-water hull cleaning of pleasure/small commercial craft is 11,756 kg while the annual copper loading from passive leaching from pleasure/small commercial craft is 6,984 kg. (PRC, 1997, Tables 3-

1 and 3.2.) Put simply, PRC found that hull cleaning contributes far more copper to San Diego Bay than passive leaching.

Submitted By: Shelter Island Yacht Basin Group

Response: The Regional Board is aware of the findings in the PRC Report, and disagrees that there is not substantial evidence to support the finding that 93 percent of copper loading comes from passive leaching and only 5 percent comes from underwater hull cleaning. The Regional Board has clearly documented the evidence to support this finding.

As the commenter notes, there was a substantial difference in the source analysis results between the January 2003 draft Technical Report and the October 2003 draft Technical Report. This was the result of the availability of new study results by the Southern California Coastal Water Research Project (SCCWRP) that were specifically designed to quantify both the passive leaching rates and hull cleaning emission rates of dissolved copper in antifouling paints (Schiff, K., D. Diehl, and A. Valkirs. 2003.Copper Emissions from Antifouling Paint on Recreational Vessels. Southern California Coastal Water Research Project. Technical Report 405). This study reported monthly average flux rates of dissolved copper (passive leaching) for three different types of paints. Additionally, the study reported the results of several experiments designed to quantify copper emission rates during hull cleaning activities. The study looked at emission rates from two types of paints, and also emission rates with and without the use of operator MPs.

In contrast, the data used for the January 2003 version of the draft Technical Report was based on the results of two studies, one conducted in 1995 (McPherson, T.N. and G.B. Peters. 1995. The Effects of Copper-Based Antifouling Paints on Water Quality in Recreational Boat Marinas in San Diego and Mission Bays. In-water Hull Cleaning Study, Ambient Concentrations Study, and Tidal Influence Study. California Regional Water Quality Control Board, San Diego Region.) and the other in 1996 (PRC Environmental Management, Inc. 1997. Report of Copper Loading to San Diego Bay, California. Prepared for California Regional Water Quality Control Board, San Diego Region and the San Diego Bay Interagency Water Quality Panel. PRC Environmental Management, INC.), as noted by the commenter. As of January 2003, these two studies were the best available sources of data describing copper emissions from antifouling paints. Despite this, there were a couple of deficiencies with these reports. First, the methods for detection of dissolved copper were not low-level detection methods. In fact, the detection limit associated with these studies was higher than the current water quality objectives.

Secondly, these older studies never quantified an actual release rate for hull cleaning activities. The quantification of copper emissions associated with hull cleaning was done indirectly by calculating the estimated size of the plume, and measuring the concentration of copper during a hull cleaning activity on one boat. As with many scientific studies, these relied heavily on assumptions, for example, the volumetric size of the contaminant plume. Although these studies provided a starting point for calculating yearly loads from

hull cleaning activities, they are inferior to the recent the SCCWRP study that quantified an actual copper release rate from hull cleaning in several controlled experiments. This study has been peer reviewed and published in the scientific literature.

Comment No. 75 **Comment ID:** 437

Comment: TMDL equations underestimate the ambient background concentration of copper in San Diego Bay ((pg. 139 & 140).

The technical report states that:

> "The [TMDL] model assumes a constant background concentration, C1. In reality, the background concentration may fluctuate because of general variations in San Diego Bay. Also, San Diego Bay is treated as "background" when in reality, levels of copper in the Bay are probably elevated over true ambient seawater conditions due to numerous point and nonpoint source discharges." (pg. 136)

As noted above, the ambient background concentration of copper in San Diego Bay was assumed to be either 0.05 µg/L (pg. A-7 & 133) or 0.5 µg/L (pg. 25). Both values are inconsistent with the real-world data referenced by the Regional Board staff elsewhere in the document:

> "In a 1998 US Navy study designed to evaluate dissolved copper concentrations throughout San Diego Bay, over half of the samples taken exceeded the numeric water quality objective of 3.1 µg/L (Katz, 1998). In another study that sampled dissolved copper concentrations in the Bay from 1991 to 1993, levels ranged from 2.8 to 5.8 µg/L, with an average of 3.8 µg/L (Valkirs et al., 1994). " (pg. 15)
>
> "Concentration levels in North San Diego Bay near the mouth of SIYB (station G) averaged 1.5 µg/L of copper." (pg. 17)

Several other documents cited by the Regional Board staff report similar conclusions. Therefore, the values used to calculate the TMDL seriously underestimate the true background concentration of copper in San Diego Bay. If the average value of 3.8 µg/L is used, then the TMDL model clearly demonstrates that SIYB cannot attain the proposed target level (2.54 µg/L) even if there is no copper-based anti-fouling paints used on any hulls moored in the marinas.

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest

Response: The Regional Board disagrees that the background concentration of copper was underestimated in the region of San Diego Bay near SIYB. The studies mentioned

by the commenter cite copper concentration for various locations in San Diego Bay, including the South Bay, which is relatively distant from SIYB and where there is little tidal flushing. In contrast, the data that were used for the TMDL calculation were limited to the North Bay, specifically in the vicinity of SIYB. Because this area is near the mouth of the Bay, there is much greater tidal flushing and subsequently, lower copper values.

Data collected by the SPAWAR was used for TMDL calculations. This collection effort was specifically designed to provide distribution data for salinity and copper in San Diego Bay. Sampling occurred across several portions of the Bay. For each region of the Bay, continuous measurements and composite samples were collected for salinity and copper, as well as other constituents. Because sampling occurred in distinct regions, only the data applicable to SIYB and the immediate vicinity were used for the TMDL calculation. The measurement techniques were appropriate and had acceptable QA/QC, and were therefore reliable.

In contrast, the copper values measured by the Regional Board were not used for any calculations. They were included in the Technical Report solely to illustrate the concentration gradient across the longitudinal direction of SIYB. The measurement techniques were significantly different from those used by the SPAWAR. Because different measurement techniques were used, the SPAWAR and Regional Board data are not necessarily comparable. Thus, only the SPAWAR date was used for TMDL calculations.

Comment No. 76 **Comment ID:** 569

Comment: Paragraph 8 discusses water quality objective violations. It states, "Sampling surveys conducted by the Regional Board in SIYB during 1994 and 2000 documented water column concentrations as high as 12µgCu\L and 8µgCu\L, respectively. (Draft TMDL, pg. 9.) No information concerning the depth at which samples were taken, time of day, tidal action or other relevant data was provided.

Submitted By: Shelter Island Yacht Basin Group

Response: The comment refers to data collected by the Regional Board that was discussed in the Technical Report. The information requested is available for review at the Regional Board office during normal business hours. The Regional Board data were used to illustrate the copper concentration gradient across the longitudinal direction of SIYB, but not in any calculations of the TMDL. Rather, data collected by the SPAWAR was used for that purpose. The SPAWAR collection effort was specifically designed to provide distribution data for salinity and copper in San Diego Bay. Sampling occurred across several portions of the Bay. For each region of the Bay, continuous measurements and composite samples were collected for salinity and copper, as well as other constituents. Because sampling occurred in distinct regions, only the data applicable to SIYB and the immediate vicinity was used for the TMDL calculation. The measurement

techniques were appropriate and had acceptable QA/QC, and therefore were used for the TMDL calculation.

Comment No. 77 **Comment ID:** 361

Comment: Validity of Allocation of Copper Loading.

Copper is a common urban runoff pollutant from automobile sources (as indicated by the technical peer reviewer) and much recent information concerning parking lot discharges, first flush effects, and street runoff is currently available from studies conducted by Caltrans and SCCWRP. The watershed drainage area indicates that the majority of the drainage is comprised of impervious surface which would discharge all surface pollution directly.

The draft TMDL relies upon inaccurate assumptions about the stormwater collection system. It uses a map from the City of San Diego (draft TMDL, pg. 40) that shows drainage from certain areas and represents that the area is 100% residential. The map excludes Shelter Island Drive and the area to the south of Shelter Island Drive. There is commercial development (shops, restaurants, convenience stores, banks, pharmacy) within the drainage area. Rosecrans Street is the only ingress/egress to the submarine base and NOSCC. The commuter traffic to these two naval facilities is significant. This portion of Rosecrans runs directly through the drainage area. Finally, the technical analysis omits the fact that the storm drains that serve the northbound traffic lanes on Shelter Island Drive (where at least four boatyards are located) cross under Shelter Island Drive and drain into SIYB. The drainage from the south side of Shelter Island Drive, which contains several of the marinas that are part of the SIYB Group, drains under Shelter Island Drive into the Commercial Basin.

The technical analysis should take into account the significant amount of commercial and industrial activities that take place in the drainage basin that empties into SIYB. Furthermore, the most current information concerning parking lot discharges, first-flush effects, and street runoff should be used to calculate the potential copper loading from urban runoff.

a. The source analyses were revised substantially between the January 31, 2003 report and the November workshop. Passive leaching was revised upward from 56% to 93%. This revision appears to be based on the results of a new study. Did the revised source analysis undergo peer review?

b. Were concentrations measured from the Caltrans and SCCRWP studies considered in the draft TMDL development?

c. What data was used to calculate load from the watersheds that drain into SIYB?

Submitted By: Shelter Island Yacht Basin Group

Response: The Regional Board agrees that copper is a common pollutant found in urban runoff. However, copper from urban runoff is not a significant source of copper loading to SIYB, in part due to the relatively small watershed area that drains to SIYB.

In order to resolve the concern that the urban runoff source calculation was inaccurate, the Regional Board recalculated the urban runoff contribution using an updated map of the SIYB watershed drainage area provided by the City of San Diego to the Regional Board in December 2003. This map contained finer detail of the land use areas than the map previously relied upon in the October 2003 draft Technical Report.

Analysis of the map showed that the drainage area is comprised of 95 percent residential land use as opposed to 100 percent. Other land use types included commercial and office, education, transportation, and institutions. Collectively, these land uses consist of roughly 5 percent of the land use in the watershed drainage area to SIYB. Loading from urban runoff was recalculated using this change in land use area.

Ultimately, the effect of this change on copper loading to SIYB was negligible, and did not result in a change in the allocations. The contribution of copper from urban runoff to SIYB remains at approximately 1 percent of total loading. Please refer to Appendix 2 for the new source analysis calculations for urban runoff.

a. The source analysis was revised based on a study conducted by the SCCWRP (Schiff, Kenneth, D. Diehl and A. Valkirs. 2003. Copper emissions from antifouling paint on recreational vessels. /Marine Pollution Bulletin/ 48:371-377) that was made available after the Technical Report was peer reviewed, but prior to its release to the public for review and comment on October 24, 2003. This study provides the most accurate, up-to-date information on underwater hull cleaning and passive leaching estimates for recreational vessels in southern California. Results from this study were therefore incorporated into the source analysis calculations in the Technical Report. The revised Technical Report did not undergo further peer review, since the methodology used to calculate loading from the available studies remained similar. The SCCWRP study was peer reviewed as part of the process for submission to the scientific journal.

b. Concentrations developed under study by the SCCWRP and Caltrans were not used in the urban runoff source analysis. The exact study to which this comment refers is unknown, since reference information was not supplied along with the comment. However, the Regional Board made contact with the commenter to obtain the information referenced in the comment, but it was not made available.

c. As described in the Technical Report, data used to calculate copper loading from urban runoff was provided by the City in their annual Storm Water Monitoring Report, pursuant to Regional Board Order No. 2001-01. The data were based on direct measurements of pollutant concentrations in flow-weighted composite samples from residential land use monitoring stations located throughout the county of San Diego. The average five-year residential land use event mean concentration (EMC) was

calculated by averaging storm event EMCs from monitoring data collected from 1994/95 to 1998/99. This monitoring data include sampling results taken from the first two storm events of each wet weather season.

Comment No. 78 **Comment ID:** 484

Comment: Attachment A, p. A9. Urban Runoff. The TR assumes that urban runoff is insignificant. The peer reviewer, Dr. Bruland, felt that the Draft TMDL did not adequately address the issue of first street runoff of the year when copper has accumulated from the wear of vehicle brake pads, etc. During the first street runoff of the year, all the accumulation of copper is washed off into storm drains and into SIYB. This first "rinse" and runoff can be the major input for the year. Dr. Bruland therefore thought that the allocation to urban runoff was probably low.

SIYB Group recognizes that the new draft states that the MS4 permit of the City of San Diego will be amended to prohibit any increase in discharge of copper, however, there is no baseline against which to measure this prohibition. It is also unrealistic for the Regional Board staff to assume that the amount of copper in urban runoff will not increase in the future. No one knows how much copper is currently going into San Diego Bay from urban runoff, more particularly, no specific testing has been done of the urban runoff into SIYB. The TR assumes that the land use for the drainage area surrounding SIYB is 95% residential. In fact, SIYB is bordered on one side by residential and on the second side by Shelter Island Drive, which is lined with fuel docks and boat yards. The third side of SIYB is bordered by Shelter Island, an area dominated by public parking lots and hotels. As is the case with so much of the technical analysis, all calculations for urban runoff of copper were based upon extrapolations of studies of standard urban residential runoff. There is nothing site specific to SIYB.

Submitted By: Shelter Island Yacht Basin Group

Response: The contribution of urban runoff as a source of copper to SIYB was determined to account for less than 1 percent of total loading, due in large part to the small size of the sub-watershed that drains to SIYB. In a receiving waterbody with a larger watershed drainage area, or one with fewer sources that contribute such high loads of copper (as in the case of recreational vessels at SIYB), the proportional contribution of copper loading coming from urban runoff could be expected to be much greater.

The dissolved copper contribution from urban runoff to SIYB during wet weather was calculated based on information compiled from the San Diego County MS4 Copermittees' annual Wet Weather Monitoring Reports (City of San Diego, 2000a). Data was compiled and averaged from five years of monitoring data collected during storm events from 1994/95 to 1998/99. During storm events, direct measurements of pollutant concentrations in flow-weighted composite samples were collected using automatic samplers from three residential land use monitoring stations in the county of San Diego. Each station was sampled annually during three storm events, which included the first

two storm events of the wet weather season, as defined by the USEPA's storm event criteria. Automatic samplers were used to collect flow-weighted samples over the storm's entire hydrograph. Thus, the copper load from urban runoff during wet weather to SIYB was estimated based on direct sampling of three storm events over five years.

Land use for this analysis came from the City, which mapped the watershed or drainage area of SIYB. Total drainage area was determined to be 2.64 km2 (653 acres), while land use was classified as approximately 95 percent single-family residential. This information on land use and drainage area was used to determine the loading to SIYB from urban runoff.

Data were not available in San Diego County to estimate copper loading to SIYB from urban runoff during dry weather. Dry weather loading of copper was assumed to be equal to wet weather loading of copper to SIYB. Dry weather loading is not likely to be greater than wet weather loading because dry weather flows are significantly lower, and wash-off of copper does not occur uniformly over the watershed, or from all land use types.

The Regional Board will amend Order No. 2001-01, "Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm /Sewer Systems" to require that discharges of copper into SIYB waters not increase from existing loadings. The order could also be amended to require MPs designed to reduce copper loading into SIYB, and/or monitoring for copper (including for baseline information) in the runoff management plan pertinent to SIYB.

Comment No. 79 **Comment ID:** 633

Comment: Close reading of Section II.4 of the TR shows that staff selectively used data from different studies that used different testing techniques to create the TR's estimate of the contribution of passive leaching. The TR "combines" findings of U.S. Navy studies and SCCWRP studies to calculate the passive leaching rate. (TR at p. 20.) The TR admits "combining the data also increases the margin of error associated with the final value." Appendix I (TR, p. 115) lists the assumptions made in the source analysis, including:

7. The behavior of copper-based antifouling paint on fiberglass panels used in the study "Copper Emissions from Antifouling Paint on Recreational Vessels" (Schiff, et al., 2003) is sufficiently similar to the behavior of copper-based antifouling paint on pleasure craft.

8. Physical seawater parameters such as pH, temperature, and salinity are negligible in terms of affecting the behavior of copper-based antifouling paint on either fiberglass panels or boat hulls.

9. In this analysis, the passive leaching rate for recreational vessels was calculated to be 6.5 µg/cm /day of copper."

There is no substantial evidence to support assumptions 7 and 8. All this has led to an ever increasing estimate of the contribution of passive leaching to the total copper loading to SIYB.

Submitted By: Shelter Island Yacht Basin Group

Response: As noted in the comment, the Regional Board used data from two different studies to estimate the contribution of dissolved copper from passive leaching, and that doing so increased the margin of error associated with the final value. However, combining the data results is reasonable because the methodologies and techniques used in both studies were sufficiently similar. In fact, the apparatus used for measuring dissolved copper in both studies was identical, and conversations with the report authors indicated that the techniques used in the second study (SCCWRP) were modeled after those used in the first study (US Navy) (Schiff, K. 2003a). Using both data sets for this exercise made use of all available data.

The assumptions described in items 7 and 8 are reasonable. In Assumption 7, the Technical Report states that the behavior of paint on fiberglass panels is sufficiently similar to the behavior of paint on pleasure craft. This is because the majority of pleasure craft is made of fiberglass materials. The fiberglass panels were used in the study explicitly to simulate boat hulls. This study was peer reviewed and published in the scientific literature (Schiff, K., D. Diehl, and A. Valkirs, 2003).

Assumption 8 states that environmental factors such as pH, temperature, and salinity are negligible in terms of affecting the behavior of paint for purposes of the source analysis. Differences in temperature, salinity, and pH between the test areas and SIYB are likely not great enough to introduce a significant error in the source analysis for passive leaching in Shelter Island. The climate in Southern California is considered mild, with little variation in temperature over the course of the different seasons. Second, in many coastal areas of Southern California, and in SIYB in particular, there is little freshwater input to the waterbody, suggesting that there would be a small range of values for other seawater parameters such as pH and salinity.

Comment No. 80 **Comment ID:** 348

Comment: Collect additional samples to more comprehensively and accurately characterize the existing water quality of the Bay

Second, we suggest that the Board, perhaps in cooperation with local stakeholder groups, collect additional samples that will more comprehensively and accurately characterize the existing water quality in the Shelter Island Yacht Basin. NMMA and MOAA agree with other commenters who have noted that the data set upon which the Section 303(d) listing and this proposed TMDL are based is extraordinarily thin and poorly documented. We share their concerns that the data that are forcing this process forward and defining the

endpoint of the TMDL process may not fairly reflect conditions within the targeted receiving waters. Further sampling also will assist in the validation of the model and, if done in conjunction with the review of the water quality criteria suggested above, can simultaneously be used to obtain speciated samples showing the actual concentrations of both ionic and organic copper at appropriate intervals within the water column. This added information can only enrich and bolster the final TMDL.

Submitted By: NMMA and MOAA

Response: The Regional Board disagrees that the data used to describe the impairment at SIYB is thin and poorly documented. Furthermore, the Regional Board feels that the evidence used is more than adequate for characterizing the conditions at SIYB and establishing the TMDL.

The Regional Board has found extensive data and scientific studies demonstrating both the presence of elevated dissolved copper levels in SIYB, and the cause of the elevated copper levels. The Technical Report contains references to numerous scientific studies and monitoring surveys conducted over the past 20 years in SIYB that document exceedances of the numeric copper water quality objectives. Furthermore, at the range of copper concentrations found in SIYB, the scientific literature documents adverse impacts of copper on aquatic organisms, particularly for bivalves, such as clams and oysters. There have also been a number of local scientific studies specifically conducted in SIYB that document elevated copper concentrations in sediment and mussel tissue, SIYB water column and sediment toxicity, and adverse affects on biota.

Comment No. 81 **Comment ID:** 155

Comment: In addition, in 1999, the dredging of the southern slip areas of Southwestern Yacht Club to the best of my knowledge encountered no opposition from EPA/water quality personnel. In fact the sand/soil was so 'clean' that the club received permission to deposit the material on the public beach to the south and west of the club properties.

Submitted By: James Barnum

Response: As documented in the source analysis of the Technical Report, there are limited studies showing elevated levels of dissolved copper in the sediment. Sediment at SIYB is composed of a relatively high percentage of clay, which has a tendency to bind copper. Copper contamination to sediment at SIYB is a concern due to the potential for adverse effects on aquatic benthic life. Additional studies of copper concentrations in sediment, sediment pore water, and potential toxic effects on the aquatic benthic community are needed to better understand the effects of dissolved copper in the water column on sediment.

Comment No. 82 **Comment ID:** 148

Comment: I do not believe this is the correct form of action for addressing water quality in the San Diego Bay with the current pollution levels of storm drainage run-off from commercial and industrial entities. Please do not punish the recreational boater for the city's inability to address the larger contributors of pollution.

Remember, one drop of oil can contaminate 1,000 gallons of water. Once commercial and industrial entities are meeting the same level of requirement, and the city has been able to put pollution controlling devices on the streets of San Diego to prevent oil drops from the millions of cars; I would be happy to comply. Until that day, your approach is unwarranted and irresponsible.

Submitted By: Brad Russell

Response: The Regional Board disagrees that the approach described in the Technical Report is unwarranted and irresponsible. The source analysis showed that the vast majority (98 percent) of the dissolved copper in SIYB comes from antifouling paints. Storm drainage run-off (referred to in the Report as "urban runoff") accounts for approximately 1 percent of the total load of copper into SIYB. Recreational boaters in SIYB are not being punished for the city's inability to address discharges of copper into storm drains.

Copper is a common pollutant found in urban runoff, and discharge levels should not increase from present levels. For this reason, the Regional Board will amend Order No. 2001-01, "Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm/Sewer Systems" to require that discharge of copper into SIYB waters not increase from existing loadings.

Order No. 2001-01 also requires the City of San Diego, and other municipalities with MS4s that discharge into San Diego Bay to implement best management practices to reduce oil discharges, and discharges of other pollutants to the Bay. Such practices include street sweeping and maintaining fleet vehicles to prevent oil leaks. Action is also required to educate car owners and others to maintain cars to prevent leaks. As in the case of dissolved copper in Shelter Island, oil discharges through the MS4s will not be eliminated overnight, but rather, through a implementing a plan to eliminate sources of the pollution over time.

Comment No. 83 **Comment ID:** 386

Comment: Divers have been identified as a discharger in this TMDL resolution. In the Regional Boards view the act of hull cleaning produces a release of copper into the environment.

Is the Regional Board certain that the process of hull cleaning (not copper leaching) produces the controlled release of copper into the environment? It is the opinion of the CPDA that copper leaching produces release into the biofilm on the hull and the environment.

The process of "previously released copper" into the biofilm is already outside the paints coating layer and technically in the environment. The act of hull cleaning should (if performed properly) not play a role in the release of copper into the environment. The only way to properly test this would be to:

1. Test the surrounding waters to establish baseline dissolved copper.
2. Clean the hull.
3. Let surrounding water return to baseline.
4. Clean the hull
5. Measure the resultant copper discharge in the surrounding area.

This will definitively deduct any Previously Released copper from the equation and only produce copper that is contributed by the process hull cleaning.

Has the Regional Board performed this specific test? If yes, when, where, date, all test data if available.

Submitted By: California Professional Divers Association

Response: Any copper present in the biofilm released into the surrounding water during hull cleaning was treated as loading from underwater hull cleaning since it occurred during and as a direct result of the hull cleaning. Since the copper in the biofilm released during hull cleaning was allocated to hull cleaning in the TMDL, the Regional Board did not perform the specific tests referred to in the comment.

The source analysis section of the Technical Report describes the manner in which copper loading into SIYB from all identified sources was approximated. For all calculations relying on outside data and knowledge, the Regional Board used the best available scientific studies and information and referenced the studies in the Technical Report. The Regional Board has not performed any tests to quantify emissions from hull cleaning. Instead, the estimation of copper loading from underwater hull cleaning was calculated based on a study conducted by the SCCWRP and detailed in a report entitled "Copper Emissions from Antifouling Paint on Recreational Vessels." (Schiff, Kl, D. Diehl, and A. Valkirs, 2003).

Comment No. 84 **Comment ID:** 272

Comment: I hope you can see some merit to my argument that: dissolved & previously leached copper does exist on a hull before a hull cleaner starts his work.

I hope I have raised doubt that maybe some of the 43% of load in sec. 4.8 and table i of your report is actually load from Passive Leaching. Maybe you could see fit to put an asterisk behind the 43% when it appears in your report. You could explain the asterisk with a comment like: This 43% could be a lesser amount because of the possibility that dissolved & previously leached copper was present on the hull before cleaning began.

Submitted By: Alpha One Diving, Chris Boyd Diving and Star Marine

Response: Comment noted. With regard to the contribution of copper from hull cleaning, the Technical Report was revised prior to its release. In the current version, approximately 5 percent of the total copper loading sources in SIYB are attributed to hull cleaning, not 43 percent.

Comment No. 85 **Comment ID:** 479

Comment: The Draft TMDL still fails to deal with the issue of copper in the sediment in a straightforward manner. The TMDL is for dissolved copper in the water column, not the sediment. Nevertheless, Finding 9 of Resolution No. R9-2004-002 states

"Copper tends to accumulate in sediment threatening the benthic life at SIYB. Copper in the sediment may need to be removed by human intervention, such as dredging which can be very costly."

Nowhere in all the documentation is there any support for the finding that elevated levels of copper in the water column have an adverse impact on the benthic community of SIYB. Nowhere in any of the documentation is there any information about the composition of the SIYB sediment, and the fact that copper in the sediment would be in the particulate form, not dissolved. Any load allocation for particulate copper would be very different than a load allocation for dissolved copper in the water column. There is no discussion or analysis of what the source of copper in the sediment might be. It is more likely to come from hull cleaning than passive leaching, but there is no discussion of either.

Submitted By: Shelter Island Yacht Basin Group

Response: Although there is evidence that copper concentrations in some sediment samples from SIYB exceeded the effects range medium (meaning the incidence of probable biological effects is 84 percent), whether the primary source of the copper in sediment is from the water column or particulate copper incorporated into the sediment is unknown. In addition to particulate form, copper can also exist in the dissolved state in sediment pore water.

The Technical Report does not address particulate copper or a load allocation for sediment because data upon which to base an allocation are lacking. Thus, developing a load allocation for sediment is premature at this time. The Regional Board has stated that

sediment could become a source of water column copper at a later date, but this will not be known for certain until further studies on sediment are completed. Additional studies are needed to determine if particulate copper is contributing to copper toxicity in sediment.

Comment No. 86 **Comment ID:** 480

Comment: The Regional Board does not yet have a means by which to assess sediment quality, or to assess aquatic dependent wildlife and human health risks related to sediment. In a letter dated August 26, 2003, from the Executive Officer of the Regional Board to the Division of Financial Assistance for the State Water Resources Control Board (SWRCB), the Executive Officer requested funding for technical work to develop cleanup levels for contaminated sediment in San Diego Bay in conjunction with a permit issued to NASSCO, a major ship building and repair facility. The letter states:

> "The Regional Board's sediment quality assessment process is still in its developmental stages. Unfortunately, portions of San Diego Bay affected by bay bottom contaminated sediment require immediate attention and site cleanup decisions must be made while the methods for assessing aquatic dependent wildlife and human health risks are still evolving. Even when reliable methods and models have been established and an adequate decision-making framework exists, only experienced, qualified technical staff can competently apply and interpret the results of such models.
>
> "The technical resources of the Department of Fish and Game can be used to ensure both the validity of the bioaccumulation assessment protocols that are being established and the successful application of these protocols at specific sites. The likelihood of establishing a scientifically defensible procedure for assessing risks related to sediment contamination in the San Diego Region is clearly less without Dr. Martin's participation. The involvement of the Fish and Game Department is also expected to greatly enhance Regional Board staff's capability to apply these sediment quality assessment approaches that require understanding of complex issues involving the ecosystems of San Diego Bay and its adjoining wetlands."

The SIYB TMDL TR states

> "No data was obtained in any of the studies on benthic community structure at SIYB. While reducing copper in the water column at SIYB is expected to also reduce the rate of sediment contamination, as copper in the sediment tends to build up and persists over time. More information is needed to accurately assess the impacts of copper contamination on sediment and benthic life at SIYB." (TR, Chapter II p. 28).

The Regional Board staff has insufficient data and lacks the ability to assess whether copper in SIYB sediment is actually harming SIYB benthic species. They doubt their own assumption that copper contributes zero to the TMDL, yet they rush to judgment that it is appropriate to compel the SIYB Group to spend a great deal of time and money to comply with an Implementation Plan that Regional Board staff seems to believe is unlikely to attain the desired objective.

Submitted By: Shelter Island Yacht Basin Group

Response: Whether or not there is harm to the benthic community at SIYB is not well known at this time. Harm is likely based on the fact that some copper concentrations in sediment from SIYB exceeded the "Effects Range Medium" level above which the incidence of probable biological effects is 84 percent.

The Regional Board does not doubt its conclusion that sediment is not a source of copper under present loading conditions. There is no evidence suggesting otherwise. Limited data indicates that sediment is a net sink. As explained in the source analysis of the Technical Report, the US Navy has gathered some sediment flux data in SIYB using the Benthic Flux Chamber, and documented negative flux rates (Valkirs et al., 1994).

The linkage analysis showed that a decrease in loading of copper will result in meeting the numeric target. The Regional Board recognizes that a lag time may be associated with this process. Water quality response may be delayed by a change in equilibrium conditions. If conditions reverse, and the net flux of copper is to the water column from the sediment, the rate of decrease in copper concentrations in the water column could slow or stagnate, even as copper discharge from paints decrease. However, if attainment of water quality objectives is not achievable without additional measures to address sediment sources of copper, the implementation plan can be modified to incorporate additional measures.

Comment No. 87 **Comment ID:** 515

Comment: The Draft Report applies the same requirements to all of the marinas in SIYB, failing to consider the unique characteristics of each marina, such as water quality at that marina, amount of “flushing” that occurs, etc.

Submitted By: SD Marina LLC

Response: The Technical Report does not apply the same requirements to all of the marinas in SIYB. The implementation plan does not specify how the load reductions should be achieved from the different sources. Any number of options could suffice. For example, each individual marina could reduce its copper discharges by 76 percent. Conversely, marinas could reduce their discharge with alternate strategies; for example, some marinas could reduce their discharge by 90 percent while others reduce by 40

percent. Whatever strategy chosen, it must be capable of achieving compliance with the dissolved copper standard throughout SIYB.

Comment No. 88 **Comment ID:** 488

Comment: Attachment A, p. A-9. Sediment. The technical analysis still assumes that the copper load from sediment to the water column is zero. (Attachment A to Resolution No. R92004-02, Table 4-12, p. A-4; T.R. Chapter 11 Section 4, p. 28.) Professor Kenneth W. Bruland, Ocean Sciences Department, UC Santa Cruz, was the peer reviewer for the Draft Technical TMDL Report dated January 31, 2003. Dr. Bruland opined that the assumption that sediment is not a source is seriously flawed and that, as a result, the whole report is flawed and not reasonable.

> "However, the rationale used to determine a zero mass loading rate associated with sediments is seriously flawed and, as a result, the whole report is flawed and is not reasonable in terms of its water quality objectives. In addition, it is difficult to defend reducing the copper loading from boat paint by 90% without data on Water Effect Ratios (WER's) and/or determination and evaluation of free [Cu2+].
>
> "What this means to this report dealing with the Shelter Island Yacht Basin is that Tables i and ii are seriously flawed. The sediment source is not zero.... If, however, the external loading of Cu in the SIYB is decreased by 90%, then the adsorption term would be decreased, but the desorption term from the historically contaminated sediments would still be high and the re-suspension of these sediments would become a net source of easily a few thousand kg\y." (TR, P. 147.)

Despite this grave concern on the part of the peer reviewer, the Source Analysis Section of the TR still assumes that the copper load from sediment to the water column is zero but concludes "The contribution of sediment to concentrations of dissolved copper in the water column may need to be reassessed in the future to determine if sediment acts as a significant source of dissolved copper as source loading is decreased." (TR, Chapter II, Section 4, p. 28.)

The net result of this is that SIYB Group is being required to engage in the very difficult, long and expensive process of reducing passive leaching of copper from boat bottoms despite the fact that the Regional Board staff does not know whether the required method of implementation will ever achieve the water quality objective.

Submitted By: Shelter Island Yacht Basin Group

Response: Data indicate, that under current conditions of high copper loading from boat hulls to the water column at SIYB, the mass-loading rate of copper from sediment to the water column is zero. Thus, zero is the appropriate value for the mass-loading rate from sediment to use in the TMDL calculation. The Technical Report also acknowledges that

the contribution of sediment to copper concentrations in the water column may need to be reassessed in the future to determine if sediment will become a more significant source in the future, once water column concentrations decrease due to reductions from passive leaching and hull cleaning.

Like all TMDLs, this TMDL is adaptive and can be modified as new studies are completed and additional data become available. Thus, if data show that, once water column concentrations decrease, sediment will become a significant source of dissolved copper in the water column, the TMDL can be recalculated and an allocation assigned to sediment. See Comment No. 195.

Scientific uncertainty is a reality within all water quality programs, including the TMDL program, and it cannot be entirely eliminated. The TMDL program must move forward in the face of these uncertainties if progress in establishing TMDLs and attaining water quality objectives in impaired waters is to be made. In accordance with this approach the Regional Board has structured an adaptive implementation action plan in the Shelter Island TMDL that simultaneously makes progress towards achieving copper water quality objectives while relying on monitoring data to reduce uncertainty and fill data gaps as time progresses. This monitoring data can be used to revise and improve the initial TMDL forecast over time. This type of approach will help ensure that the Shelter Island TMDL is not halted because of a lack of data and information, but rather progresses while better data are collected to verify or refine assumptions, resolve uncertainties, and improve the scientific foundation of the TMDL.

The statement that "the Regional Board staff does not know whether the required method of implementation will ever achieve the water quality objective" is far-fetched considering that most of the copper in sediment came from the hulls of boats moored in SIYB. Thus, decreases in loading from passive leaching and hull cleaning are needed to stop the loading of copper to sediment, as well as to the water column. Nonetheless, as stated above, the TMDL Implementation Plan is also adaptive. If additional implementation measures are needed to address sediment sources of copper, the plan can be revised appropriately.

Comment No. 89 **Comment ID:** 381

Comment: No consideration has been given to the Navy's contribution to copper emissions in San Diego Bay through the presence of dozens of large ships of war. These ships use copper extensively in their engine cooling systems. In addition, no consideration has been given to many other naturally or human-involved methods of transport of copper into the bay.

Submitted By: Dale Eigenberger, Ed Washington, Fred Hecker, Jack Ciardelli, John F. and Dee S. Pruyn, M(illegible) Pruyn, Richard Hohol, Ralph Price, Rene and Maureen Savalle, Terence and Candice Gleeson, and William Standerwick.

Response: At present, the standard antifouling paint for the US Navy is a copper-based paint. As with smaller recreational boats, discharge of copper occurs from Navy ships. Hence, this leaching of copper from Navy ships adds copper to the water column in San Diego Bay. Any additional uses of copper, such as for engine cooling, would also contribute to copper discharged into the Bay. Because Navy ships are not located in SIYB, but are located in greater San Diego Bay, copper from Navy ships is not a significant source to SIYB.

Regarding the second part of the comment, all sources of dissolved copper loading to SIYB were considered and quantified in the TMDL, including loading from San Diego Bay. The contribution of copper entering SIYB from ambient seawater in San Diego Bay was termed "background." Loading from background accounted for less than one percent of total loading of dissolved copper to SIYB. Copper from Navy ships, and copper transported to the bay from other natural and anthropogenic sources is accounted for in the calculation of background loading.

Measurements of dissolved copper concentrations in San Diego Bay taken by the SPAWAR were used to characterize background conditions. Background concentrations were measured in San Diego Bay just outside of SIYB in the area called Box 7 shown in Figure A3.4 of the Technical Report.

Comment No. 90 **Comment ID:** 383

Comment: The computer model used to calculate the proposed standards failed to consider the amount of copper that may come from the sediment rather than from paint on boat hulls. The proposed Total Maximum Daily Load for copper is flawed because of water chemistry factors and the amount of copper present from sediment. If the copper from the water column decreases, then sediment may become a source of copper and cause greater toxicity to benthic organisms. If you want to take the worse case scenario, as someone in the peer review did, even if we do convert to all boats having non-toxic paints on the bottoms, he believes we would never meet the standards in the TMDL because of the copper in the sediments. Once the copper is removed off boat bottoms, the copper will start migrating from sediment as means to balance out.

Submitted By: Adams and Albies Inc., Ann Kinner, Ed Short, Gayle O'Connell, Hallmark Yachts, Jim Hoslison, Judith Ingalls, Mick Laver, Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest, Shelter Island Yacht Basin Group, Seabreeze Books & Charts, and San Diego Yacht Club.

Response: In the Technical Report, the Regional Board presents a source analysis based on best available information. As explained in the text, although there are sediment flux rates available throughout San Diego Bay, there is little information for SIYB. Sediment can act as both a source and sink for copper in the water column. In SIYB, there is direct

scientific evidence suggesting that under current conditions, sediment acts as a sink. The US Navy has gathered some sediment flux data in SIYB using the Benthic Flux Chamber, and documented negative flux rates (Valkirs et al., 1994). In other words, copper is currently moving from the water column to the sediment. Therefore the TMDL calculations are based on current conditions, and the sediment is treated as a sink. The mass-loading rate for copper from sediment into the water column is zero.

Further studies are necessary to better understand the water column/sediment flux phenomenon. If, in the future, new studies indicate that potential sources such as sediment are indeed significant to the water column, then the TMDL and load allocations can be recalculated. If studies demonstrate that sediment is, or could become a significant source once primary sources, such as copper-based antifouling paints have been reduced, then the TMDL and allocations could be amended at a later date. An allocation for sediment loading could be assigned to the dischargers responsible for the sediment contamination. The Implementation Plan could also be amended to include management practices to reduce copper loading from sediment if needed.

Since the main source of copper to both the water column and sediment is copper antifouling paints on boats moored in SIYB, reducing copper loading from this source should ultimately improve conditions in both the water column and sediment in the long term.

Comment No. 91 **Comment ID:** 386

Comment: Copper residue in the San Diego Bay waters is also a result of urban runoff and atmospheric deposition from the recent wild fires in North County. The San Diego Water Quality Control Board has either erred in its testing methods or the results were skewed by perhaps the urban runoff and fire debris.

Submitted By: Fred Hecker, James Barnum, Rene and Maureen Savalle, Recreational Boaters of California, and Shelter Island Yacht Basin Group.

Response: All potential sources of dissolved copper loading to SIYB were considered and quantified in the Technical Report, including urban runoff and atmospheric deposition. The Regional Board determined the amount of copper entering SIYB from each identified source, using data extending over several years.

The Regional Board determined that only a small amount of copper loading to SIYB, less than 2 percent, originated from urban runoff and atmospheric deposition while the majority came from the use of copper-based antifouling paints (97 percent). The small contribution of copper from urban runoff is due in large part to the relatively small size of the watershed area that drains to SIYB. Likewise, atmospheric deposition contributes a very small proportion of dissolved copper loading to SIYB because the surface area of SIYB is relatively small. On the other hand, the density of boats painted with copper antifouling paints in SIYB is quite high.

The additional copper loading to SIYB resulting from atmospheric deposition from the wildfires in North County was not analyzed in the Source Analysis. However, this source is unlikely to be significant compared to boats painted with copper-based paints because of the small area of SIYB open to atmospheric deposition and the high number of copper-painted boats moored in SIYB.

A detailed discussion of copper loading is contained in the Source Analysis of the Technical Report. Because 98 percent of copper in SIYB comes from the use of antifouling paints, a significant decrease in, or elimination of the use of these paints will result in attainment of water quality objectives and restoration of beneficial uses.

Comment No. 92 **Comment ID:** 394

Comment: The Draft TMDL underestimates the contribution of underwater hull cleaning to the total load of copper released to SIYB each year. We believe that more data concerning the effectiveness of proper bottom cleaning techniques on the longevity of bottom coatings would be helpful.

Submitted By: Shelter Island Yacht Basin Group.

Response: The Regional Board disagrees that the Technical Report underestimates the contribution of underwater hull cleaning to the total load of copper released to SIYB each year. The Regional Board assumed that all vessels in SIYB are regularly maintained, and that each vessel undergoes underwater hull cleaning 14 times a year. In addition, the Regional Board assumed that half (50 percent) of the hull cleaners use MPs. The Regional Board believes these assumptions to be reasonable and applicable.

Even if no MPs are being used during hull cleaning in SIYB, this would not significantly change the results of the source analysis. If we assume that no MPs are used, hull cleaning would result in a loading of approximately 125 kg/year from hull cleaning, as opposed to 98 kg/yr under current assumptions. Compared to 2,000 kg/yr coming from passive leaching, the contribution from hull cleaning is not substantial be it 125 or 98 kg/yr.

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7. TOTAL MAXIMUM DAILY LOADS AND ALLOCATIONS

The comments in this section pertain to the discussion of waste load allocations found in section II.7 of the Technical Report. Comments pertaining to source analysis sediment issues are grouped in subsection 6.1.

Comment No. 93 **Comment ID:** 483

Comment: Attachment A to Resolution No. R9-2004-002, pg. A-8. The formula for creating a new TMDL based upon site-specific water quality data still retains the former allocations among passive leaching, hull cleaning, urban runoff, and background. SIYB Group presented evidence that contradicts the load allocations. There is nothing to indicate that Regional Board Staff considered this new evidence. The original source analysis is the only support for the load allocations.

Submitted By: Shelter Island Yacht Basin Group

Response: This comment is correct that the allocations are based on the source analysis contained in the Technical Report dated October 14, 2004. This comment further states that evidence was presented by the SIYB Group that contradicts the load allocations. We have reviewed your comment letters and public testimony and cannot find evidence that would contradict the allocations. Please refer to comments: 53, 74, 78, 88, 94, and 95 for our responses to your additional comments on the source analysis.

Comment No. 94 **Comment ID:** 487

Comment: In contrast to the increased allocation to passive leaching, the contribution of underwater hull cleaning to copper loading has been inappropriately reduced by the failure of the testing upon which the TR relies to account for all of the copper-containing particulate matter that is dislodged and released as part of the hull cleaning process. See, e.g., TR at p. 21, discussing underwater hull cleaning:

"Smaller amounts of dissolved copper also leached from debris and sediments after the cleaning ended. The particulate form of copper is rapidly incorporated into the bottom sediment, likely rendering it unavailable to water column organisms.... Another conclusion was that the potential adverse effects of increased particulate copper were probably long-term in nature, and dependent on resuspension or sediment uptake from benthic organisms."

The discussion of underwater hull cleaning makes it clear that the only concern was water column organisms, yet the TMDL speaks repeatedly of concern about adverse effects of copper on benthic organisms. (See, for example, Finding 9 of Resolution R9-2004-0002.)

Submitted By: Shelter Island Yacht Basin Group

Response: The statement that "…the only concern was water column organisms [in the context of this project]…" is incorrect. The Technical Report text referenced in this comment involved a description of observations made during a study conducted by the US Navy (Valkirs, et al., 1994). The authors of the study concluded that there were potential adverse effects of hull cleaning on both aquatic and benthic organisms. For this reason, the draft Technical Report discusses repeatedly, as the commenter states, of the concern to protect the benthic species in SIYB.

The allocation for hull cleaning was not inappropriately reduced from previous drafts of the Technical Report. The allocation for hull cleaning presented in the October, 2003, and October, 2004 drafts rely on new evidence from a study conducted by SCCWRP (Schiff, K., D. Diehl, and A. Valkirs). As opposed to previous studies, this study measured dissolved copper contributions directly from recreational vessel antifouling coatings for both passive leaching and hull cleaning activities. These contributions were reported in terms of rates, which were previously unreported. The quantification of these rates allowed the Regional Board to calculate annual loads, and establish appropriate load allocations.

Comment No. 95 **Comment ID:** 486

Comment: Attachment A. p. A-9. Hull Cleaning. The allocation for hull cleaning assumes that all divers will use Management Practices (MP) to clean boat hulls that have copper-bottom paint. This is contradicted by the Source Analysis Assumption Appendix 1, p. 116, #10, which states "Half (50 percent) of the underwater hull cleaners use Management Practices (MPs) to perform cleanings."

Submitted By: Shelter Island Yacht Basin Group

Response: These statements are not contradictory. The source analysis assumed, for purposes of calculating the dissolved copper contribution of underwater hull cleaning to SIYB, that fifty percent of divers currently use MPs to clean vessel hulls underwater. Once the TMDL is fully implemented, it is assumed that one hundred percent of divers will use MPs to clean vessel hulls underwater. Based on this assumption, the required copper reduction and resulting allocation from hull cleaning was calculated. In reality, the reduction that will likely be achieved from underwater hull cleaning will be even greater than that assigned in the TMDL as boat owners convert to nontoxic antifouling paints. Cleaning a nontoxic coating will not result in release of copper into the environment.

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8. COPPER ANTIFOULING PAINT REGULATION

The following comment pertains to the discussion of the USEPA's authority to regulate copper antifouling paint as found in section III.10 of the Technical Report.

Comment No. 94 **Comment ID:** 370

Comment: There is a key question in regard to the identification of copper as a pollutant, since copper is regulated by both the California Department of Pesticide Regulation and the Environmental Protection Agency. Both of these agencies have approved the use of the paint currently used for boat bottoms. The Regional Board does not have the authority to regulate copper-based paints.

Submitted By: Shelter Island Yacht Basin Stakeholders, Half Moon Anchorage, Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest, SD Marina LLC, Seabreeze Books & Charts, Shelter Island Yacht Basin Group.

Response: Pesticides including copper based antifouling paints are industrial chemicals produced specifically for the purpose and intent of killing target pest organisms. They are designed to be toxic to target pests and must be purposely introduced into the environment to do their job. However, once introduced in the environment, the pesticide may also adversely affect non-target organisms. For this reason copper antifouling paints, like all pesticides, are subject to regulation under several state and federal laws. The laws which apply at any given time depend on whether copper, the pesticide active ingredient, is acting on target fouling organisms or on non-target aquatic organisms.

This TMDL is required because residual copper discharges from copper antifouling paints cause the water quality objectives for copper to be violated in SIYB. The residual copper discharges are the result of the legal use of copper antifouling paints in accordance with label instructions and in compliance with FIFRA. Any discharge of a chemical that affects water quality in a manner that detracts from the suitability of water for a beneficial use is a discharge that is subject to regulation by the Regional Board as either a discharge of "waste" pursuant to CWC section 13050(d) or a "pollutant" under CWA section 502(6).

A discharge of "waste" or a "pollutant" (residual copper) occurs as a consequence of properly using copper-based antifouling paints on boat hulls. Copper- based antifouling paint is a registered pesticide applied to vessel hulls for the purpose and intent of killing target fouling aquatic organisms. The pesticide is designed to poison the entire aquatic environment of a vessel hull surface in order to discourage or prevent the growth of marine fouling organisms. However, the impacts of copper antifouling paint are not limited to target fouling organisms–other aquatic life in the vicinity of the boat hull may

also be impacted. Due to water movement in the vicinity of the boat hulls, residual copper (the active pesticide ingredient) can be carried to adjacent areas in concentrations high enough to cause adverse effects to non-target aquatic organisms.

Furthermore, the Regional Board has been coordinating for several years on the SIYB TMDL project with local, State and federal governmental agencies that are responsible for regulating the sale and use of pesticides, namely the CAC, DPR, and the USEPA. The State Board has a formal Management Agency Agreement (MAA) with DPR dated March 1997 that commits both agencies to work together to jointly address violations of water quality standards due to pesticides. In support of the MAA, the DPR has also developed the Process for Responding to Pesticides in Surface Waters (Process) dated March 2003, that describes specific actions that both agencies may undertake to address water quality problems resulting from the use of pesticides. For example, the Process recognizes that the DPR can designate a pesticide as a "restricted material" or cancel a pesticide's registration in California. The Process also recognizes that the Regional Board can designate a waterbody on the CWA List of Water Quality Limited Segments as "impaired" due to pesticides, and subsequently develop a TMDL to resolve the impairment.

In its December 10, 2003 letter to the Regional Board commenting on the SIYB TMDL, The USEPA indicated:

"EPA is planning to conduct a full assessment of all copper based pesticides as part of the copper Re-registration Eligibility Decision under Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). As part of this re-registration process, EPA will consider all information on copper-based antifouling paints, including ecological risk and fate data. Whereas final decisions are not expected until fall 2006, EPA may cancel or restrict use of a pesticide if alternatives are available. Under FIFRA, directions for use are provided on the product label and those directions apply nationwide; nevertheless, each state may choose to make more stringent directions regarding pesticide application or [to take] more immediate action than federal timelines."

The Regional Board will continue to coordinate with these agencies to search for regulatory, and possibly legislative, solutions, to address the water quality problem in SIYB.

Comment No. 95 **Comment ID:** 374

Comment: The proposed action is based upon a situation which has not occurred: the enactment of either a national or statewide ban on the use of copper-based antifouling paints. No ban has even been proposed. This regulation would ban the use of copper paints.

Submitted By: Shelter Island Yacht Basin Stakeholders, Half Moon Anchorage, Metzger Development Services, LLC., Recreational Boaters of California, San Diego Unified Port District, San Diego Yacht Club, Seabreeze Books & Charts.

Response: The Implementation Plan portion of the Technical Report is not based on enactment of a ban, nor does it require a ban on copper-based antifouling paints. The Regional Board does not have the authority to enact a ban on a legally registered pesticide. However, the Regional Board has been coordinating for several years with government agencies responsible for regulating the sale and use of pesticides, namely the DPR, the CAC, and the USEPA. These agencies have the authority to impose different restrictions or ban the sale and use of copper-based antifouling paints at the local, state or federal levels.

Several features of the Implementation Plan are based on the recommendations of an important investigation and report entitled "Transitioning to Non-Metal Antifouling Paints On Marine Recreational Boats in San Diego Bay" (Carson et al., 2002). The Carson report identified nontoxic alternatives, compared the costs of using these alternatives to the cost of using traditional copper-based antifouling paint and identified economic incentives for transitioning to the use of alternatives. As discussed in the Economic Analysis, the authors of the Carson report recommended consideration of a ban. Specifically, the authors recommended two policy instruments that policy makers may wish to consider in resolving the copper pollution problem in San Diego Bay, while still maintaining the economic viability of boating:

1. Announce a future ban on the use of copper-based antifouling paints and set a specific date by which copper-based antifouling paints will no longer be allowed in San Diego Bay; and

2. Require that all new boats be coated with nontoxic coatings and that existing boats convert to nontoxic alternatives when routine stripping is required.

In the event that regulations or restrictions on copper-based antifouling paints are eventually imposed on a countywide, statewide, or national level, the required copper wasteload reductions likely will be achieved in SIYB sooner than the 17-year schedule proposed in the Implementation Plan. However, if the DPR, the CAC, or the USEPA never enact a ban on the use of copper-based paints, the dischargers of copper to SIYB must still meet the load reductions within the 17-year compliance schedule.

The 17-year compliance schedule allows for a gradual transition to nontoxic or less toxic alternative antifouling strategies that is likely to parallel increased market research and availability of products along with decreased costs for these products.

Comment No. 96 **Comment ID:** 404

Comment: Registration of the pesticide under FIFRA and DPR regulations already takes into account reasonable alternatives and effects of the copper coatings on the environment and non-target organisms.

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest, and SD Marina LLC.

Response: In order for a pesticide to be registered, the environmental impacts must be evaluated. Through the registration process, the USEPA evaluates the pesticide to ensure that it will not have unreasonable adverse effects on humans, the environment, or non-target species when used in accordance with label specifications. Under FIFRA, the USEPA established a nationally uniform labeling system to regulate pesticide use. Pesticide label language is under the sole jurisdiction of the USEPA.

According to the USEPA, although the FIFRA registration process may consider the environmental effects of a pesticide's use, it is not currently designed to ensure that the use of the pesticide in accordance with its label directions will not cause or contribute to exceedance of water quality standards. Under FIFRA, directions for use are provided on the product label and those directions apply nationwide; however, where those directions are inadequate to ensure that WQS are met in certain water bodies, more stringent local/regional measures may be required under the CWA, for example through TMDLs.

According to the DPR, the pesticide product registration process includes submission and review of certain specified fish and wildlife data and certain specified data on certain non-target organisms for applicable products. If the data are found acceptable, the product is registered. Although California laws and regulations (FAC 12825 and CCR section 6158) mention consideration of alternative products, a detailed alternative analysis is beyond the scope of the normal registration process when no significant adverse effect is anticipated. The DPR can initiate a reevaluation of existing registered products, if a product has caused, or is likely to cause, a significant adverse impact. This could include consideration of availability of demonstrably less destructive products.

In the case on SIYB, the cause of the high copper concentrations and adverse effects on biota are a result of the use of copper-based antifouling paints. Therefore, additional measures are needed to reduce copper levels at SIYB. The Regional Board has been and will continue to coordinate with the USEPA and the DPR to resolve the water quality problem at SIYB.

Comment No. 97 **Comment ID:** 337

Comment: EPA is planning to conduct a full assessment of all copper based pesticides as part of the copper Re-registration Eligibility Decision under Federal Insecticide,

Fungicide, and Rodenticide Act (FIFRA). As part of this re-registration process, EPA will consider all information on copper anti-fouling paints, including ecological risk and fate data. Whereas final decisions are not expected until fall 2006, EPA may cancel or restrict use of a pesticide if alternatives are available. Under FIFRA, directions for use are provided on the product label and those directions apply nationwide; nevertheless, each state may choose to make more stringent directions regarding pesticide application or more immediate action than federal timelines.

Submitted By: U.S. Environmental Protection Agency

Response: Comment noted.

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9. REGIONAL BOARD'S AUTHORITY TO REGULATE COPPER DISCHARGES

The comments in this section pertain to the discussion of the Regional Board's authority to regulate copper discharges found in section III.11 of the Technical Report.

Comment No. 98 **Comment ID:** 368

Comment: The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA): Whether a pesticide that is regulated under FIFRA and applied in compliance with the U.S. Environmental Protection Agency (EPA) EPA's approved label directions constitutes a "pollutant" under the Clean Water Act is currently the subject of a dispute between the U.S. EPA and the California State Water Resources Control Board (SWRCB). The Draft TMDL summarizes this ongoing dispute at pages 57 through 63.

The U.S. EPA Office of Water issued an Interim Guidance on July 11, 2003 which states U.S. EPA's view that until comments are received, it is U.S. EPA's opinion that aquatic pesticides are neither "chemical waste, nor biological materials, if the pesticides are regulated under FIFRA." U.S. EPA also asserts that it is inappropriate to issue an NPDES permit for the application of aquatic pesticides. The SWRCB's proposed solution to this impasse is that the U.S. EPA should revise the Interim Guidance to be consistent with SWRCB's interpretation of two cases decided by the United States' Court of Appeal for the Ninth Circuit and further recommends that U.S. EPA amend the Clean Water Act and FIFRA to resolve conflicts in the use of the term "pollutant." Thirteen pages of the draft TMDL are devoted to justifying the imposition of Staffs view of how the federal Clean Water Act should be interpreted, which view is contrary to the view of the U.S. EPA, the federal agency that is ultimately responsible for the enforcement of the Clean Water Act. (Draft TMDL pp. 50-63). The draft TMDL candidly admits that the current controversy between the state of California and the U.S. EPA over this issue has created a conflict for the State and the regulated community.

Because the U.S. EPA and the SWRCB, both of which have jurisdiction over water quality in California waters, are in total disagreement on this point, it seems highly likely that this issue will continue to be a source of disagreement. It will eventually be resolved either by legislation or by a U.S. Supreme Court ruling. Whatever the means, the resolution will likely take several years. If the resolution of the dispute is in favor of U.S. EPA, then the draft TMDL's view that issuing an NPDES permit for copper-based antifouling paints will be wrong. The parties that are the permit holders would therefore needlessly have borne the burden of an inappropriate regulatory mandate. Premising the issuance of an NPDES permit to a very small group of marinas upon an interpretation by the SWRCB of a federal law despite the fact that the SWRCB's interpretation of the federal law is contrary to the interpretation of the U.S. EPA is patently unfair. The draft TMDL puts the burden of this controversy and uncertainty on a very small microcosm of the regulated community.

Submitted By: Shelter Island Yacht Basin Group

Response: Comment noted. The portion of the section entitled "Legal Authority for TMDL Implementation Plan" that discusses the issue in the comment was deleted in the revised Draft Technical Report and the section entitled "TMDL Implementation Plan for Shelter Island Yacht Basin" was rewritten in response to comments that passive leaching of copper from boat hulls is not a point source and should not be regulated under WDRs that implement NPDES regulations. Although there are plausible arguments that the discharge of copper from boat hulls is from a point source, to develop and apply appropriate numeric effluent limits and other conditions needed for NPDES requirements would be complex and controversial. The Regional Board's authority to implement the TMDL is not affected by the deletion of the legal analysis. The arguments for and against regulating passive leaching under NPDES requirements may need to be addressed as the Regional Board pursues implementation. For now, the comment is moot.

Comment No. 99 **Comment ID:** 370

Comment: Use of A Registered Bottom Paint in the Authorized Manner Does Not Constitute A "Discharge" of a "Pollutant": Another questionable finding of the draft TMDL is that the intended and specifically designed means of applying the pesticide to target organisms, i.e., leaching of the copper from the surface of the painted hull is a "discharge." The bottom coating is designed and intended to leach. This is not a "discharge" within the meaning of the Clean Water Act or the Porter-Cologne Act. This is not akin to discarding a container that contained insecticide that has been applied, nor is it akin to discarding a chemical when its utility in a manufacturing process is completed or dissipated.

Submitted By: Shelter Island Yacht Basin Group

Response: Pesticides are designed to be toxic to target pests and must be purposely introduced into the environment in order to function. However, once introduced into the environment, the pesticide may also adversely affect non-target organisms. The copper leached to the environment from copper antifouling paints is classified as a residual pesticide. A residual pesticide is any molecule of pesticide, including a legally applied and registered pesticide, that does not reach a target organism. Residual pesticides are "pollutants" under the CWA and "waste" under the CWC. "Waste," as defined by the CWC section 13050 also includes substances whose formation was caused by human activity, or any substance whose path through the ecosystem is controlled or affected by a human agency. Copper leaching into the environment from copper antifouling paints and affecting non-target organisms becomes unwanted discharge, albeit from a currently registered pesticide. This leaching is affecting water quality and beneficial use in the area.

Comment No. 100 **Comment ID:** 581

Comment: Adverse Effects of Copper. Copper is used as the biocide in anti-fouling paints because of its known toxicity to marine life. At relatively low concentrations levels, copper is toxic to aquatic organisms." (see pg. 9 of Technical Report)

- This is a true statement. Copper-based paints create a thin "shield" around the boats. However, once copper is released from the paint, as drifts away from the hull, it rapidly becomes non-toxic as it comes into contact with dissolved organic carbon. That is why EPA and DPR were able to approve copper-based anti-fouling paints as "safe" for general use.

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest.

Response: Once copper is released into the environment by leaching from a painted boat hull it can become non-toxic if it binds to organic carbon. Copper-based antifouling paints may in fact be safe for general use. However, in small, shallow boat basins with limited tidal flushing, and a high density of copper-painted boats, dissolved copper may reach levels that are toxic to aquatic life and may not be safe for use.

Comment No. 101 **Comment ID:** 452

Comment: If "knowledge of the activity causing the discharge and "ability to control the activity" are sufficient to establish legal liability under the Clean Water Act, then EPA and the California Department of Pesticide Regulation (DPR) must also be considered "dischargers" under the TMDL. Both agencies have knowledge of the activities causing the discharge and both agencies have the ability to control the activity. Both agencies can ban copper-based antifouling paints entirely or restrict the labels so as to preclude the use of such products in SIYB.

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest.

Response: The Regional Board has discretion to regulate landowners and owners and operators of facilities on which activities occur that result in a discharge of waste as long as the owner has knowledge of the activity causing the discharge and the ability to control the activity. The USEPA and the DPR could not be regulated by the Regional Board using these criteria, since the USEPA and the DPR do not own the land nor facilities on which activities occur that result in the discharge of copper to SIYB.

The Regional Board will continue to coordinate with the appropriate governmental agencies, including the USEPA and the DPR, to address water quality exceedances of the

numeric water quality objectives for copper that result at SIYB from the use of copper-based antifouling paints. The USEPA and the DPR have the authority to restrict or ban the use of copper-based antifouling paints.

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10. DISCHARGERS ACCOUNTABLE FOR COPPER LOAD AND WASTELOAD REDUCTIONS

The comments in this section pertain to the discussion of dischargers accountable for copper load and wasteload reductions found in section IV of the Technical Report.

Comment No. 102 **Comment ID:** 506

Comment: Marina owners are not "dischargers" of "waste" within the meaning of those terms under state law, and the issuance of Waste Discharge Requirements to marina owners or operators is not appropriate.

The Draft Report states that the "Regional Board may issue Waste Discharge Requirements" to any person discharging waste into SIYB, and suggests that marina owners and operators are within the group of dischargers subject to that provision. This is precisely the same defect in the prior draft TMDL which the marina owners and operators challenged, and was the subject of a Regional Board staff meeting with national trade associations in September 2004. The revised version of the report simply footnotes the possibility of NPDES permits for the passive leaching of copper from boats, and adds a discussion of the Regional Board's authority to issue Waste Discharge Requirements ("WDRs") for that activity. Replacing a requirement to obtain a NPDES permit with one to obtain WDRs is functionally equivalent and provides little comfort for marina owners and operators.

Regulations promulgated pursuant to the Porter-Cologne Water Quality Control Act ("Porter-Cologne") define a discharger as "any person who discharges waste which could affect the quality of waters of the state, and includes any person who owns a waste management unit or is responsible for a waste management unit." 23 CCR § 2600. Porter-Cologne permits the Regional Board to issue WDRs to "any person discharging waste, or proposing to discharge waste, that could affect the quality of the water of the state." Water Code § 13260 (emphasis added). Note that the operative (and active) verb is "discharge."

In the present case, the marina owners and operators are neither discharging, nor proposing to discharge, any wastes to waters of the state. The passive leaching of copper from hulls, where the registered pesticide coating is properly applied, does not constitute the discharge of a waste. Even if passive leaching is considered a waste discharge, the marina owners and operators are not the persons discharging the waste; rather, it is the boat owners that own and have control over the boats and any "wastes" discharged from them.

Marina owners and operators should not be vicariously liable for the acts of others. The implementation plan of the Draft Report potentially would make marina owners and operators liable for the acts of third parties -- boat owners and hull cleaners.

Submitted By: SD Marina LLC

Response: Although passive leaching of copper from boat hulls is a direct consequence of the actions of boat owners, the Regional Board has discretion to regulate landowners (the Port) and owners and operators of facilities (the marina owner/operators) on which activities occur that result in a discharge of waste, as long as the owner has knowledge of the activity causing the discharge and the ability to control the activity. The marina owners/operators and Port meet all of these criteria as discussed in section IV of the Technical Report.

The Implementation Plan (section V) does not replace a requirement to obtain a "NPDES permit" with one to obtain WDRs. The Implementation Plan does not specify the administrative tool for the Regional Board to use to regulate the copper discharges in SIYB. The Regional Board could issue WDRs, waivers, or adopt a prohibition. If WDRs are issued, they may or may not implement federal NPDES regulations, depending on whether or not passive leaching is determined to be a point source or a non-point source.

Comment No. 103 **Comment ID:** 478

Comment: The TR carries forward the notion that marina owners and operators are responsible as "dischargers" of copper despite the undisputed facts that marina owners and operators (a) do not manufacture the copper bottom paint that is the source of the passive leaching; (b) do not apply the copper bottom paint; and (c) do not own or operate the boats to which the bottom paint is applied. Moreover, the Draft TMDL still requires marina owners and operators, which are private entities with no regulatory or enforcement powers, to somehow compel boat owners to stop using copper bottom paint.

Submitted By: Shelter Island Yacht Basin Group

Response: The basis for regulating the marina owners/operators is not because they manufacture the paint, or apply it, or because they own the boats. The Regional Board has the authority to regulate SIYB marina owners/operators because they own or operate facilities on which activities occur that result in a discharge of waste, they have knowledge of the activity causing the discharge and the ability to control the activity. The marina owners/operators and the Port meet all of these criteria as discussed in section IV of the Technical Report.

The SIYB marina owners/operators have the ability to control discharges of copper to SIYB. Marina owners/operators exercise control and enforcement over boat owners and their discharges by way of conditional lease or license agreements with owners of boats moored within the marina leasehold. The conditions written into these contract agreements are the key to the marina's legal authority to exercise control over residual copper discharges from boat hulls within the marina leasehold. By way of these conditions, the marina owners/operators can control the number of moored boats, the

types of hull coatings used, and hull cleaning activities allowed within the leasehold. Marina owners/operators can also require the use of MPs by boat owners and hull cleaners and require boat owners to provide proof of hull coating composition.

Comment No. 104 **Comment ID:** 450

Comment: Marina owner/operators cannot be construed as dischargers. Marina owner/operators do not manufacture or apply copper-based paints to boat hulls. Nor do they own or operate the vast majority of all boats to which the paint is applied. Nor do they clean the hulls of said boats. Nor are they "landowners" as defined by various Orders issued by the State Water Resources Control Board. (cited on pg. 48). Therefore, marina owner/operators engage in no activity that causes or contributes to alleged water quality exceedances of dissolved copper objectives and cannot be construed to be "dischargers."

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest.

Response: Although passive leaching of copper from boat hulls is a direct consequence of the actions of boat owners, the Regional Board has discretion to regulate owners and operators of facilities (the marina owner/operators) on which activities occur that result in a discharge of waste as long as the owner has knowledge of the activity causing the discharge and the ability to control the activity. The marina owner/operators meet all of these criteria.

Comment No. 105 **Comment ID:** 451

Comment: The Technical Report cites State Board Order No. WQ 90-3 to establish three criteria upon which landowners can be "held accountable for discharges which occur or occurred on the landowner's property: (1) ownership of the land; (2) knowledge of the activity causing the discharge; and (3) the ability to control the activity." (pg. 48). Then, by analogy, Board staff attempts to extend these criteria to marina owner operators:

"The Regional Board has the discretion to hold SIYB marina owner/operators accountable for discharges which occur or occurred within the marina leasehold based on three criteria: (1) status as owner or operator of the marina facility; (2) knowledge of the activity causing the discharge; and (3) the ability to control the activity. The SIYB marina owners/operators meet all three of these criteria." (pg. 49)

Previous State Board decisions extending NPDES liability to third-parties were limited to "landowners." No mention of leaseholds is made in the cases cited by Board staff. In addition, all previous cases were directed at illegal point source discharges. In this instance, copper-based antifouling paints are a legally-approved pesticide. Therefore, the

marina owner/operators lack any legal authority to prohibit the continued use of these products provided they are applied in accordance with federal and state requirements specified on the product label.

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest

Response: There are other criteria besides land ownership (cited in State Board Order WQ 90-3) that sufficiently link a person with an activity resulting in a discharge of waste, making the person accountable for the discharge and subject to regulation. In the case of SIYB, owning or operating a facility at which activities occur that result in a discharge of waste, having knowledge of the activity causing the discharge, and the ability to control the activity are sufficient criteria to hold the marina/owners operators accountable for the discharge. Therefore, regulating discharges of copper at marinas through the issuance of WDRs or waivers to marina owners/operators, or adopting prohibitions is appropriate.

The marina owners/operators have the authority to limit and control activities that result in the discharge of copper to SIYB. Controls that marina owners/operators can impose on boat owners to reduce the discharge of copper are discussed in section V.17 of the Technical Report.

Comment No. 106 **Comment ID:** 453

Comment: In addition, under the theory advanced by Board staff, every other boat owner and marina in San Diego Bay (including the U.S. Navy) must also be considered dischargers to Shelter Island Yacht Basin:

"Every molecule of copper poison that does not reach a target organisms is a 'waste.' Every molecule of copper poison that affects water quality necessary to support a non-target organisms is pollution.' (pg. 37) (emphasis added)

"Numerous marinas are located throughout San Diego Bay, and according to the Port's annual pleasure craft survey, approximately 7,295 recreational vessels have a confirmed occupancy in San Diego Bay." (pg. 12)

"Dissolved copper concentrations are elevated in many locations throughout San Diego Bay, particularly in the southern reaches and enclosed yacht basins (Katz, 1998; VanderWeele, 1996; McPherson & Peters, 1995; Valkirs et al., 1994)." (pg. 15)

Despite these clear statements acknowledging that marinas throughout San Diego Bay are "causing or contributing" to exceedances of the dissolved copper objective, Board staff failed to include any of the other marinas among those responsible for discharges to SIYB. The Navy was also not cited as a discharger, nor were its vessels included in the

Source Analysis Assumptions (see pg. 115), despite the statement in the Technical Report that:

"Much of the bayside is owned and operated by the U.S. Navy." (pg. 11)

Since, according to the Technical Report, 50% of all copper ever released into San Diego Bay is deposited to the sediment (see pg. 26), then all agencies responsible for copper contributed by stormwater runoff anywhere in the entire watershed must also be considered dischargers to greater San Diego Bay and Shelter Island Yacht Basin in particular.

Board staff incorrectly considered only the urban runoff which drained directly to SIYB in their analysis. However, the Technical Report makes it clear that copper also finds its way into SIYB indirectly from other sources throughout San Diego Bay. If Board staffs definition of "discharger" is accepted, then the distinction between direct and indirect activities leading to increased copper loads is irrelevant and the list of liable dischargers cited in the TMDL is incomplete. Nor were the economic impacts evaluated for these other responsible parties as required by the California Water Code.

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest.

Response: The Regional Board recognizes that dischargers other than those named in the Technical Report could be contributing to the levels of dissolved copper in San Diego Bay. This includes discharges from pleasure boats in neighboring marinas, Navy vessels, and urban runoff. However, because these sources have a much smaller degree of impact on the water quality in SIYB then the boats directly discharging inside the boundaries of the waterbody, regulating these outside sources would have little impact on water quality improvements. Therefore, regulating the numerous outside sources for the purpose of improving water quality in SIYB is impractical, and an inefficient use of scarce resources.

Comment No. 107 **Comment ID:** 535

Comment: Neither the Marinas nor the Port District are Dischargers Under State or Federal Law

Under both state and federal law, "discharge" is defined, for purposes of the NPDES permitting program, as "(a) any addition of a `pollutant' or combination of pollutants to `waters of the United States' from any `point source,' or (b) any addition of any pollutant or combination of pollutants to the waters of the `continguous zone' or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation." 40 CFR §122.2; California Water Code §13373. An "owner or operator" is defined to mean the owner or operator of any "facility or activity" subject to

regulation under the NPDES program. Id. Assuming for the sake of argument, that the boats in SIYB are point sources and thus potentially subject to NPDES permitting, it is the boat owners and operators that would be classified as dischargers. Clearly, neither the marinas, nor the District, are the "owners" or the "operators" of any of the boats (i.e., the theoretical point sources) in question, and thus neither is a "discharger."

Submitted By: San Diego Unified Port District

Response: If WDRs or waivers were issued to the Port or to the marina owners/operators, the action would not be based on the Port and marina owners/operators owning or operating individual boats. The Regional Board has the authority to issue WDRs to any person discharging waste, or proposing to discharge waste that could affect the quality of the waters of the State. As stated in the Technical Report, because the Port is the trustee of the land on which an activity occurs that results in a discharge of waste, and because the Port has knowledge of the discharge and the ability to control it, WDRs or waivers can be issued to the Port to regulate the discharge.

Likewise, because the marina owners/operators own or operate a facility on which an activity occurs that results in a discharge of waste, and because the owners have knowledge of the discharge and the ability to control it, WDRs or waivers can be issued to the marina owners/operators to regulate the discharge.

Comment No. 108 **Comment ID:** 644

Comment: Moreover, even if it were the marinas that were the actual dischargers, the RWQCB should follow its long-standing policy and hold the “landowner” only secondarily liable in any WDRs or other permit issued to the marinas. Footnote 18 is misleading. In the matter described therein, the State Water Resources Control Board did deny the District’s request to remove its designation of “responsible party” entirely, but it remanded the matter to the RWQCB to clarify the District’s limited responsibility. Because the State Board’s direction to the Regional Board still did not sufficiently clarify the District’s obligations as a “secondarily liable” party, the District then initiated steps to challenge the order in Superior Court. Prior to filing its lawsuit, however, an agreement was reached with respect to language that would be added to these NPDES orders to make clear that the District would not be primarily responsible for compliance with the permit requirements of its tenants.

Submitted By: San Diego Unified Port District

Response: Footnote 18 is accurate in its summary of the State and Regional Boards' actions. The Regional Board may regulate the discharge of copper to SIYB by issuing WDRs or waivers to the Port, or through adoption of a prohibition. Typically the Regional Board does not make a distinction between primary and secondary liability in its orders, but could certainly do so if a need exists. The Regional Board would not expect the Port to be responsible for compliance with the WDRs directed to its tenants.

Further, any WDRs issued to the Port will likely be distinct from those issued to the marina owner/operators.

Lastly, the issue of whether or not WDRs or other orders will be issued to the Port does not need to be resolved in order to establish the TMDL and identify practicable implementation strategies, but will need to be addressed as the Regional Board pursues implementation of the TMDL.

Comment No. 109 **Comment ID:** 551

Comment: Moreover, the Port District questions the legal authority the RWQCB intends to rely upon to attempt to force the District into a regulatory role in prohibiting the use of copper hull paints on private vessels. The District is dismayed by what is clearly selective enforcement in reducing copper levels only at SIYB. Areas throughout San Diego Bay, nearby Mission Bay, and enclosed yacht basins across the state likely contain similar levels of dissolved copper and are not being addressed in this manner.

Submitted By: San Diego Unified Port District

Response: The Regional Board does not intend to force the Port to prohibit the use of copper hull paints on private vessels. In fact, the Regional Board does not have the authority to dictate the methods for achieving compliance with copper load reductions.

SIYB is the only embayment in the State designated as a water quality limited segment for which a TMDL for dissolved copper must be developed in accordance with CWA section 303(d). Dissolved copper impairment most likely exists in other embayments in the State, however, data were insufficient to list any other water bodies during the last listing cycle in 2002. More embayments may be designated and listed in the current listing cycle scheduled to be completed in early 2005. Concerned about the lack of data, the Regional Board initiated the Regional Harbor Monitoring Program. Copper monitoring in the region's harbor is one of the priorities of the program.

Comment No. 110 **Comment ID:** 538

Comment: Boats are Transitory in Nature and Thus Not Under the Port District's Control.

As is well known, boats are not stationary and in fact are meant in most cases to provide a means of transportation, whether such transportation is recreational, commercial or other. Any boat may leave SIYB at any time and without notice to either the marina at which it is berthed, or the marina's landlord, the District. Thus, the argument that the District has "control" over these boat owners and operators is illusory. While it may be appealing to believe that simply requiring the District and marinas to address the complex issue of regulating over 2,300 separate owners and operators will resolve the issue, the

District respectfully disagrees with this approach. To the extent that the responsibility for regulating the operation of individual boats should be shifted, however, perhaps there is some merit to considering shifting the responsibility to those agencies that register the boats. Attempting to shift this responsibility to an entity that clearly does not have "control" over these transitory sources, and which is not the owner or operator of the alleged dischargers, such as the District and the marinas, is simply unworkable.

Submitted By: San Diego Unified Port District

Response: The Regional Board agrees that the Port does not have control over the individual boat owners. However, the Port has the ability to control the discharges of copper from the marinas and yacht clubs. The Port has land use authority on these lands and controls decisions regarding the citing and sizing of all marinas in SIYB. Furthermore, under its lease agreements with the SIYB marina owners/operators, the Port has the ability to impose controls that could prevent or reduce copper discharges. Additionally, the Port and marina owners/operators in SIYB should conduct boater education programs and oversee and coordinate on commercial and/or scientific studies regarding nontoxic and less toxic antifouling strategies. Since the Port is aware of the problem, has the ability to control these discharges, and acts as the landowner, the Regional Board has the authority to regulate the Port with respect to copper discharges to SIYB.

Comment No. 111 **Comment ID:** 536

Comment: (A) The RWQCB Bases its Conclusion on the Erroneous Assumption that the District Controls the "Dischargers"

i. Port District May Not Modify Existing Leases Without Tenant Concurrence. The RWQCB bases its determination that it may hold the District responsible for discharges from privately owned vessels on the erroneous assumption that the District can simply amend existing lease agreements to impose controls to prevent or reduce copper discharges. Aside from the fact that the "dischargers" are the boats and not the marinas, the RWQCB's assumption also fails to recognize that a lease is a contract between two parties, and that one party may not simply modify the terms and conditions of that contract at its pleasure. District leases may be amended only by consent of both the District and the tenant. The opportunity for an amendment arises only at the expiration of a marina's 40-year lease term, or when the marina needs an amendment in order to refinance, redevelop or make some other major change to the leasehold. Those occasions have historically been infrequent.

District leases with marinas and yacht clubs in SIYB, and their expiration dates, include the following (footnote 4):

Footnote 4. The SIYB/TMDL also lists the La Playa Yacht Club and the Shelter Island Roadstead A-la, b, and c as sources of boat slips. The Shelter Island Roadstead is an

anchorage, which the District leases from the California State Lands Commission. The La Playa Yacht Club is a 2-boat pier that offers docking for Point Loma residents on a rotating basis. It is operated under a Temporary Use and Occupancy Permit, with a 30-day cancellation provision.

Bay Club Marina, 2131 Shelter Island Drive Expires 12/31/2035
Best Western Island Palms Hotel and Marina, 2051 Shelter Island Drive, Expires 11/20/2038
Crow's Nest Yacht Brokerage, (footnote 5) 2515 Shelter Island Drive Gold, Expires 3/31/2004 Coast Anchorage, (footnote 6) 2353 Shelter Island Drive, Expires 1/31/2020
Half Moon Anchorage, 2131 Shelter Island Drive, Expires 11/30/2024
San Diego Marlin Club, (footnote 7) 2445 Shelter Island Drive, Expires 4/30/2004
San Diego Yacht Club, 1011 Anchorage Lane, Expires 9/30/2010
Shelter Pointe Hotel and Marina, 1551 Shelter Island Drive, Expires 5/31/2032
Silver Gate Yacht Club, 2091 Shelter Island Drive, Expires 9/30/2010
Southwestern Yacht Club, 2702 Qualtrough Street, Expires 9/30/2010

Footnote 5 The Crows' Nest Yacht Brokerage is not a marina, but a yacht broker and thus it is likely that boats do not remain at this leasehold for a significant amount of time.

Footnote 6 Gold Coast Anchorage is a yacht broker, and it is therefore likely that boats do not remain at this leasehold for a significant amount of time.

Footnote 7 The San Diego Marlin Club is a non-profit club that weighs fish for the public.

Submitted By: San Diego Unified Port District

Response: The Regional Board recognizes that the Port cannot amend existing lease agreements with the marinas unless the Port complies with the terms and conditions of its contracts with the marinas. The Port has the ability to request that the tenants agree to amend the leases to incorporate management practices to reduce copper discharges. If the marina owners/operators refuse to renegotiate the terms and conditions of the leases, the Port may have no choice but to amend the leases at the expiration of the lease term or when the marina needs an amendment.

Comment No. 112 **Comment ID:** 527

Comment: San Diego Unified Port District, page 48: The RWQCB argues that the Port District should be considered a “discharger” because it “can control” the discharges of copper from the passive leaching from boat bottoms. The RWQCB argues that the District controls these boats because it has “owns” the lands, controls decisions over siting and size of all marinas in SIYB, and because the District actually investigated alternative hull paints in an effort to assist in addressing the issue. As discussed above, and in the District’s 12/9/03 Comments, attached hereto as Exhibit 1, while the District

may have control over the siting and size of marinas in SIYB, it does not have control over the actual source of the copper discharges – the individual boat owners. Because boats are necessarily transitory in nature, and because the District has no direct contractual or other relationship with any individual boat owner, the RWQCB's reasoning rings hollow. To go back to our scenario with air emission, this is tantamount to suggesting that the District has control over every vehicle that parks in one of its tenant's parking garages – this is simply not the case.

Submitted By: San Diego Unified Port District

Response: In this comment, the Port objects to being characterized as a discharger for a variety of reasons. The Port states that it does not have control over the individual boat owners, to which the Regional Board agrees. However, as described in the Technical Report, the Port has the ability to control the discharges of copper from the marinas and yacht clubs. The Port has land use authority on these lands and controls decisions regarding the citing and sizing of all marinas in SIYB. Furthermore, under its lease agreements with the SIYB marina owners/operators, the Port has the ability to impose controls that could prevent or reduce copper discharges. Additionally, the Port and marina owners/operators in SIYB should conduct boater education programs and oversee and coordinate on commercial and/or scientific studies regarding nontoxic and less toxic antifouling strategies.

As discussed in our response to Comment No. 115, the parking lot analogy is flawed because parking lots are not sufficiently like marinas. Cars do not continuously run while congregated in a parking lot, and therefore do not concentrate contaminants in the air while parked in the lot. However, boats continuously leach copper from their hulls into SIYB while congregated in marinas.

Comment No. 113 **Comment ID:** 522

Comment: Page R-3, Dischargers, paragraph 12: The Port District objects to the RWQCB's classification of the District as a "discharger." As the RWQCB's own technical analysis states, 93% of the copper loading in SIYB comes from passive leaching from the hulls of over 2,300 individually owned boats. These boats are neither stationary, nor the source of point source discharges, and thus it is illusory to suggest that these boats are under the District's control. See also the District's discussion in its 12/9/03 Comments to the Draft SIYB/TMDL, at pages 4 to 7, a copy of which is attached as Exhibit 1.

Attachment A to Resolution No. R-9-2004-0002, TMDL Implementation Plan, at page A-6: As set forth in Comment 1.A, above, and in the District's Comments to the Draft SIYB/TMDL, at pages 4 to 7, the District objects to being classified as a "discharger."

Executive Summary, Implementation Plan, page 5: As set forth in Comment 1.A, above, and in the District's Comments to the Draft SIYB/TMDL, at pages 4 to 7, the District objects to being classified as a "discharger."

Section IV. Introduction, at page 48: The District objects to being classified as a "discharger" as set forth in Comment 1.A, above, and in the District's 12/9/03 Comments to the Draft SIYB/TMDL, at pages 4 to 7.

Submitted By: San Diego Unified Port District

Response: The Regional Board can regulate landowners if an activity resulting in a discharge of waste occurs on their land, they have knowledge of the activity, and the ability to control the activity. The Port meets these criteria.

As trustee, the Port acts as landowner in its responsibility to manage the tidelands and the submerged lands occupied by marinas in SIYB. The Port has land use authority on these lands. In exercising this authority, the Port controls decisions regarding the citing and sizing of all marinas in SIYB. The Port has full knowledge of the copper discharges from antifouling paint and the effects of these discharges on the water quality of San Diego Bay. In fact the Port co-sponsored an alternative hull paint demonstration study, is currently investigating the effectiveness of several types of paint that demonstrate innovative antifouling strategies, and is systematically repainting its entire vessel fleet with these new coatings. Finally, the Port has the ability under its lease agreements with the SIYB marina owners/operators, to impose controls that could prevent or reduce copper discharges. These facts establish that the Port is accountable for discharges of copper from antifouling paints to SIYB.

Comment No. 114 **Comment ID:** 530

Comment: Discharger Strategies to Reduce Dissolved Copper Loading to SIYB, Impose Controls on SIYB Marina Owners and Operators to Limit Use of Copper-Based Hull Paints and Implement Financial Incentives to Encourage the Use of Alternative Antifouling Strategies, page 64: These "strategies" for addressing the copper exceedances in SIYB are simply an attempt to shift the regulatory burden for this politically distasteful task to the Port District. As discussed in the District's 12/9/03 Comments, at pages 9 to 12, these are not efficient or effective methods of regulating the actual dischargers and only add layers of unnecessary regulatory authority. It is the Regional Board's role to regulate the dischargers and, if need be, obtain a ban on copper-based antifouling paints.

Submitted By: San Diego Unified Port District

Response: If the Regional Board chooses to regulate the Port, the reason for doing so will be practicality, not a desire to avoid so-called politically distasteful tasks. The principles on the issue of landowner liability under both waste discharge requirements and enforcement orders are well established in a series of orders adopted by the State Board

during the 1980s and early 1990s. The Regional Board clearly has the discretion to name non-operating landowners such as the Port in waste discharge requirements and NPDES orders because landowners may properly be considered "dischargers" under the CWA and the CWC.

We disagree that regulating the Port and the marina owners/operators in lieu of the boat owners and hull cleaners is not efficient or effective. The naming of the marina owners/operators as dischargers responsible for residual copper discharges emanating from individual boats moored within their leaseholds - as opposed to individual boat owner users of the marina facility – is fully consistent with, and analogous to, the Regional Board's regulation of other waste discharges within the Region involving waste discharges caused by users of a facility. See response to Comment No. 140.

For clarification, the Regional Board does not have the authority to ban the sale and use of copper-based antifouling paints. The Regional Board, in conjunction with the State Board, will pursue regulatory solutions with other agencies having legal authority over the registration, sale, and use of copper-based antifouling points in California to address the copper impairment in SIYB.

Comment No. 115 **Comment ID:** 519

Comment: The State Legislature established the San Diego Unified Port District as a specially created district to develop the harbor and port facilities in San Diego Bay. San Diego Unified Port District Act § 2. The Regional Board, on the other hand, is charged with, among other things, "[o]btain[ing] coordinated action in water quality control, including the prevention and abatement of pollution and nuisance." Porter-Cologne Water Quality Control Act § 13225(a). As a result, the Regional Board, unlike the District, has in place a well-established system of laws and regulations to allow it to protect water quality. Rather than rely on those tools, however, the Regional Board's proposal appears to simply shift the task of regulating individual boat owners to two more layers of authority, first the District and then the marinas. The Regional Board suggests that the District can best accomplish the protection of water quality in SIYB by amending its leases with marinas. This approach is flawed in many respects, including that it largely overlooks the root cause of the elevated copper levels in this case, i.e., that copper is a prime constituent of state and federally approved bottom paints used regularly on nearly every boat in the United States.

Consider this scenario. The Air Quality Management District is required to regulate emissions of a certain pollutant, and proposes doing so by requiring the Port District to amend its leases with operators of parking lots to insure that each car that uses the lot has specific pollution control equipment or uses a particular type of fuel. How would the Port District, or its tenants - the parking lot operators, enforce such a requirement? The District suggests that, in such a scenario, a more effective approach would be for the Air District to obtain a ban of the fuel, or obtain compliance through the agency that regulates the vehicle owners, the Department of Motor Vehicles, as is done currently with smog

tests. Such an approach also seems more in line with avoiding the type of fragmentation and overlap of regulatory authority that the Governor's California Performance Review is currently attempting to rectify.

Submitted By: San Diego Unified Port District

Response: On the contrary, the Regional Board recognizes that the root cause of the copper pollution in SIYB is directly attributed to the use of State and federally approved bottom paints used regularly on boats in SIYB. In recognition of this fact, the Implementation Plan includes coordination with governmental agencies having legal authority over the use of copper-based antifouling paints.

The Implementation Plan also acknowledges that the Port has the authority to impose controls on and/or provide financial incentives to SIYB marina owners/operators to limit the use of copper-based hull paints, or use nontoxic or less toxic alternatives.

The parking lot analogy is flawed because parking lots are not sufficiently like marinas. Cars do not continuously run while congregated in a parking lot, and therefore do not concentrate contaminants in the air while parked in the lot. However, boats continuously leach copper from their hulls into SIYB while congregated in marinas.

Comment No. 116 **Comment ID:** 645

Comment: This analysis is flawed for another reason. Just as the RWQCB would shift its responsibility for regulating the dischargers to the Port District, thus making the District the "regulator," it also names the District as the "regulated."

Submitted By: San Diego Unified Port District

Response: The Regional Board has a responsibility to regulate discharges of copper to SIYB. The Port may be regulated by the Regional Board under WDRs, Waivers, or a Prohibition as part of the implementation of the TMDL. The Regional Board disagrees that in doing so, it is shifting its responsibility to the Port.

Comment No. 117 **Comment ID:** 558

Comment: Finally, if the only way the marinas can effect copper reductions is through BMPs, than why doesn't the Regional Board just permit the Port?

The Port would seem to have all the necessary authority and resources to perform the requirements of the copper TMDL. They can:

1. Hold there lease holds (marinas) responsible for specific BMPs and the BMP training records of its perspective employees as applicable.

2. They can enforce environmental policy in support of the TMDL through already formed departments set up to monitor marinas efforts and progress.
3. They have the ability and resources to gain available public and private funding to support demonstrations, public education projects and scientific studies.
4. They have the ability to police and require divers that perform on Port property (SD Bay) to be certified in BMPs or demonstrate that they have been educated in some formal BMP Program.

Submitted By: California Professional Divers Association

Response: Comment noted. The Regional Board will make decisions regarding which persons will be responsible to take actions to reduce copper discharges during the implementation phase of the TMDL project.

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11. TMDL IMPLEMENTATION PLAN FOR SHELTER ISLAND YACHT BASIN

The comments in this section pertain to the Implementation Plan found in section V of the Technical Report.

Comment No. 118 **Comment ID:** 393

Comment: Several interested persons have raised legal objections to the proposed use of NPDES requirements to implement the load reductions set forth in the technical TMDL. The main points raised in their comments are that passive leaching of copper from boat hulls and copper discharges from marinas are not point source discharges, that marinas are not point sources and should not be regulated as such, that passive leaching is incidental to the normal operation of a vessel and is not subject to NPDES regulations, and that residual copper from antifouling paints is not a pollutant and not subject to NPDES regulations.

Submitted By: NMMA and MOAA, Risk Science on behalf of: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest, Shelter Island Yacht Basin Group, and San Diego Unified Port District.

Response: Due to the controversy surrounding the issue of relying on NPDES requirements to implement the TMDL load reductions, including several legal objections to this approach, the Regional Board has elected to defer consideration of the need, or legal authority, for issuing NPDES requirements for the Port, marina operators, individual boat owners, or hull cleaners at this time. Less controversial implementation alternatives that do not depend on the issuance of NPDES requirements are available. Modification of the proposed implementation plan for this TMDL should not be construed as a rejection of the analysis prepared to support reliance on NPDES requirements. However, the controversial nature of the proposal to rely on NPDES requirements tended to distract many commenters, and the Regional Board, from the technical merits of the TMDL. The legal issues raised by interested persons need not be addressed in detail at this time, but would need to be fully considered by the Regional Board if, in the future, it should propose to regulate copper discharges from passive hull leaching under NPDES requirements.

As a result, portions of the section entitled "Legal Authority for TMDL Implementation Plan" making the case that the discharge of copper from boat hulls is a point source, and the text stating that the Regional Board will implement the load reductions through issuance of NPDES requirements have been deleted from the Technical Report. Likewise, portions of the section entitled "Dischargers Accountable for Copper Load and Wasteload Reductions" have been deleted. The section entitled "Implementation Plan" was rewritten.

Comment No. 119 **Comment ID:** 504

Comment: Regulating copper coatings only in one area (SIYB) of San Diego Bay is fundamentally unfair, will not result in any bay-wide improvement for copper concentrations, and may create or exacerbate dissolved copper problems in other areas of the bay.

As discussed above, the passive leaching of copper from boat hulls is not unique to SIYB. If the Regional Board implements controls, including phasing out copper coatings, in SIYB only, the result will simply be shifting pollution from SIYB to other marinas where the controls are not in-place. Faced with the prospect of converting to less attractive hull coatings, as well as additional management practices such as those related to hull cleaning, boat owners simply may choose to terminate or not renew their leases with SIYB marinas, and moor their boats in other marinas in San Diego Bay. The dissolved copper concentrations in the water columns at those marinas will rise in an amount equivalent to the reduction at SIYB, resulting in a net zero overall improvement to San Diego Bay. Moreover, this may create copper problems in the waters in those localized areas of the bay, or, more likely, worsen the already-impaired states of those waters.

It would be fundamentally unfair to burden SIYB marina owners and operators with the potential economic consequences of forcing boat owners to convert to alternative coatings or moor their boats elsewhere in the bay, where the environmental effect is simply displacing passive leaching of copper from one marina to another within the bay. Regulating only marina owners in SIYB would put them at a significant economic disadvantage to all other marina owners and operators in the region without a corresponding net benefit to the environment. Absent a region-wide implementation plan, the Board's actions would contravene both the purposes and philosophies of sound environmental regulation. The Regional Board must promulgate and enforce consistent controls for all marinas within the San Diego Region, else its actions would be arbitrary, capricious, discriminatory, and unsupportable.

The Draft Report suggests that the Port District "could" implement similar controls in leases for all marinas in San Diego Bay to "level the economic playing field." (p. 64). However, making discriminatory enforcement optional does not satisfy principles of fundamental fairness. In addition, deferring to the Port District to determine whether to apply the standards uniformly does not insulate the Regional Board's approach. Even if the Port District chose to implement the standards consistently throughout San Diego Bay (though there is no evidence in the record suggesting that it would do so in this case), the Port District likely would not be able to enforce new conditions until its current leases with the other marinas expire or are renewed, which may not occur for decades.

Without implementing consistent requirements applying to all marinas in San Diego Bay, the Draft Report is fundamentally flawed.

Submitted By: SD Marina LLC

Response: If the Regional Board did not regulate discharges of a copper in SIYB until it could regulate all discharges of copper in San Diego Bay, water quality in SIYB would continue to degrade instead of improve. The pollutant loading reductions mandated by TMDLs are site-specific by nature and are not intended to level the playing field in impaired and unimpaired waterbodies with regard to allowable discharge quantities of a pollutant. The TMDL is a regulatory tool that is exercised on a case-by-case basis where site-specific water quality impairment considerations dictate a need for site- specific pollutant load reductions.

At this time, the Regional Board has no basis for regulating copper discharges via a TMDL in other water body segments of San Diego Bay. A TMDL for dissolved copper was developed specifically for SIYB because it is on the CWA List of Water Quality Limited Segments, and the Regional Board is required to do so. In the San Diego Region, SIYB is currently the only marina, bay, or harbor designated as a water quality limited segment due to high concentrations of dissolved copper. While water quality impairment due to dissolved copper is likely to exist in other marinas with a high density of recreational vessels and low tidal flushing, during the last listing cycle (2002), data were insufficient to support placing other marinas on the list.

The State Board is developing a new list, which should be completed in early 2005. Additional water bodies within San Diego Bay where boats with copper antifouling paint are congregated in marinas may be designated as water quality limited segments for dissolved copper impairment on the new list. Until then, the Regional Board cannot promulgate and enforce consistent controls for all marinas within the San Diego Region to advance the TMDL written specifically for SIYB.

As a separate consideration outside of the Shelter Island TMDL adoption process, the Regional Board could consider adoption of Waste Discharge Requirements (WDRs), waivers of WDRs, or a Basin Plan prohibition, or some combination of these administrative tools for all marinas in the San Diego Region to level the playing field. All marinas, with or without a TMDL, could be required to participate in monitoring for copper, and develop contingency plans for copper load reductions on a bay-wide basis as a condition of the basin plan prohibitions, WDRs or waivers.

We acknowledge that the current situation may creates economic disadvantages for SIYB marinas and boat owners compared to other marinas and boat owners in San Diego Bay. However, the statement that boats painted with copper based paints will move from SIYB into other San Diego Bay marinas as a likely consequence of TMDL implementation is speculative. Most marinas in San Diego Bay are at or near full capacity, with waiting lists to accept new boats. Further, SIYB's location near the mouth of San Diego Bay makes it one of the most desirable locations to moor a recreational boat in the Bay.

The Regional Board recognizes that the copper pollution problem in SIYB is likely part of a bigger problem that may exist in other recreational harbors and bays across the State.

For this reason the Regional Board has been and will continue to pursue additional regulatory, and possibly legislative, solutions with other government agencies having legal authority over the registration, sale, and use of copper-based antifouling paints in California. However, the statewide scope of the problem does not offset the Regional Board's statutory obligation to move forward with adoption of the Shelter Island TMDL at this time.

Comment No. 120 **Comment ID:** 529

Comment: Discharger Strategies to Reduce Dissolved Copper Loading to SIYB, Conduct Boater Education Programs, page 63: The SIYB/TMDL states that, by the Port District's conducting boater education programs, it will be able to build consensus supporting the need and rationale for the transition to non-toxic paints. This approach seems backwards. If there is a requirement to reduce copper levels in SIYB by such a significant degree, shouldn't the education be about complying with the new requirements. A law banning copper-based paints in California would avoid the need to spend resources building consensus for such a change.

Submitted By: San Diego Unified Port District

Response: Education and outreach is important component of the TMDL. The Regional Board agrees that outreach should include information to the boating community about the TMDL and its requirements. Additional outreach should serve to educate the boaters about the impacts of copper-based antifouling paints on the environment and available alternative coating strategies. The more information the boating community has about the problems associated with copper-based antifouling paints, the more likely boaters will be motivated to switch to nontoxic strategies. In the absence of a law banning copper-based paints in California, education and outreach is an even more critical tool to promote environmental awareness and action.

Comment No. 121 **Comment ID:** 514

Comment: The Carson report, cited by the Regional Board in the Draft Report, recommended studies and demonstrations to evaluate and prove the viability of alternatives. Without such studies, the Regional Board's approach is baseless and arbitrary.

Submitted By: SD Marina LLC

Response: The compliance schedule includes the conduct of education programs for the SIYB boating community and commercial demonstrations and scientific studies. These efforts should be initiated during the first two years and continued throughout the 17-year schedule as appropriate.

During the first two years of the schedule, no reductions in dissolved copper emissions are required. This orientation period has two purposes: (1) initiation of an educational effort for boat owners and boating industries on the copper pollution problem, nontoxic and less toxic antifouling strategies, and short versus long-term costs of nontoxic and less toxic coatings relative to copper-based paints; and (2) initiation of commercial demonstration and scientific studies to confirm the efficacy and longevity of available nontoxic and less toxic boat hull coating products. The demonstrations and studies will also allow boat repair yards and underwater hull cleaners the opportunity to develop expertise and acquire special equipment needed for the application and maintenance of nontoxic and less toxic boat hull coatings.

Comment No. 122 **Comment ID:** 518

Comment: The Regional Board has determined that the source of copper loading to the SIYB is well established, with 93% of copper loading coming from passive leaching off of individual boats, and an additional 5% from activities involved in cleaning the hulls of these same boats. Nevertheless, the Regional Board also has concluded that it would be too "complex and controversial" to regulate the individual boat owners, see Revised Draft SIYB/TMDL pg. 38, fn. 9, and pg. 67, fn. 31, and so initially, in its Draft SIYB/TMDL, the Regional Board proposed simply shifting this politically difficult task to the District and the marinas. While the District shares the Regional Board's concerns regarding the complexity of this task, simply shifting the responsibility does nothing to alleviate those concerns.

Submitted By: San Diego Unified Port District

Response: In describing the issuance of WDRs that implement NPDES regulations (aka, "NPDES Permits") as complex and controversial, the Regional Board had no particular recipient in mind. Any decision to regulate marina owners/operators and not to boat owners and hull cleaners will be due to practical considerations. These practical considerations are discussed in the response to Comment No. 175.

Comment No. 123 **Comment ID:** 336

Comment: If the Regional Board approves the Basin Plan amendment and TMDL implementation plan, then in a distinctively separate action, the Regional Board may evaluate the appropriateness of NPDES permit issuance and other implementation tools.

Submitted By: U.S. Environmental Protection Agency

Response: Comment noted. Any regulatory action taken by the Regional Board will be accomplished in a separate action.

Comment No. 124 **Comment ID:** 539

Comment: As an alternative, the RWQCB also suggests that it may hold the Port District responsible for discharges incidental to the normal operation of a vessel by claiming that the District "caused or permitted the discharge of copper" under Section 13304 of the California Water Code. Pursuant to Section 13304, the RWQCB has the authority to issue a cleanup and abatement order to those persons causing or permitting any waste to be discharged to waters of the state where it may create a condition of pollution. The RWQCB argues that, by virtue of the fact that the District leases to the marinas property the District holds in trust for the State of California, the District should be held responsible for the contamination caused by nonpoint source dischargers. Although the District would vigorously oppose such an order, today it will simply request that the RWQCB first consider the enormous precedential impact of such an action, and the consequences that are sure to follow.

Submitted By: San Diego Unified Port District

Response: Comment noted. The Regional Board likely will regulate the discharges of copper to SIYB using its administrative tools (WDRs, waivers, prohibitions) rather than a cleanup and abatement order since the discharges of copper will be ongoing for the foreseeable future. Thus, the "caused or permitted" text in the Technical Report has been revised accordingly. The Implementation Plan has been rewritten and does not state which specific tool the Regional Board will use to implement the TMDL. That decision will be made during the implementation phase of the project. The reason for rewriting the Implementation Plan is discussed in Comment No. 22.

Comment No. 125 **Comment ID:** 135

Comment: The San Diego Regional Water Quality Control Board has proposed that the aforementioned vessels must have the bottom of the hull painted with a product approved by them.

Submitted By: William Standerwick

Response: This statement is incorrect. The Regional Board does not have the authority to require that vessels be painted with a certain type of paint. The Board cannot mandate the manner of compliance with the proposed copper load reductions. Finding 13 of Tentative Resolution No. R9-2005-0019 states that the Regional Board, other governmental agencies, and identified dischargers of copper will take the necessary actions to meet the TMDL.

The draft TMDL report does not specify the manner of compliance, but does discuss reasonably foreseeable methods of compliance, including the use of nontoxic and less toxic hull coatings. Dischargers are free to pursue any other legal methods of compliance, as appropriate.

Comment No. 126 **Comment ID:** 274

Comment: My suggestions for the RWQCB are:
(1) That the marinas are required to encourage or demand less bottom painting for boats that stay in their Marina.
(2) That more frequent cleanings take the place of more bottom painting.
(3) That the Marinas inform the hull cleaners who work in their Marina, that they must become self regulating and perform environmental friendly cleaning procedures.
(4) That a model for such environmental friendly procedures is the Alpha One Diving Healthy Bay Project.
(5) That all Marina Customers are regulated as to how often they bottom paint. Enforcing this regulation is possible when all the hull cleaners are a member of a self-regulating association. A diver knows when he is looking at a newly painted hull.

Submitted By: Alpha One Diving, Chris Boyd Diving, and Star Marine

Response: The Regional Board cannot specify the method of achieving compliance with the TMDL. However, these and other MPs listed in the Implementation Plan may be important elements of pollution control programs for the marinas. Implementation of pollution control programs can be required by the Regional Board through its different administrative tools as described in the Implementation Plan.

Comment No. 127 **Comment ID:** 520

Comment: In this case, the District maintains that the first and most critical step, if success is to be achieved in reducing copper loading in SIYB, and elsewhere, is to obtain a ban on copper-based paints. A second step may be to require that annual registrations or renewals for each individual boat owner include a certification that a non-toxic, or approved paint, has been applied to the boat. This approach would remove the two layers of "middle-men" and focus directly on the source of the copper releases.

Submitted By: San Diego Unified Port District

Response: Comment noted. Keep in mind that a 100 percent reduction in loading from copper-based antifouling paints is not needed in order to meet the TMDL. Thus, a total ban on copper-based paints is not needed.

Comment No. 128 **Comment ID:** 531

Comment: Coordination with Governmental Agencies Having Legal Authority Over the Use of Copper-Based Antifouling Paints, Legislative Initiatives, page 64 - 66: The Port District believes that legislative or other action, banning copper-based antifouling paints,

is the most critical component of the SIYB/TMDL. This section fails to develop a specific plan of action and lacks any real sense of urgency.

Submitted By: San Diego Unified Port District

Response: Comment noted. Be assured that the Regional Board will be diligent in its efforts to work with other agencies to address the water quality problems with copper antifouling paints.

Comment No. 129 **Comment ID:** 342

Comment: Finally, EHC supports the Board's continuing action to pursue regulatory (and possibly legislative) solutions with other regulatory agencies having legal authority over the registration, sale, and use of copper antifouling paints in California to address the problem in

Submitted By: Environmental Health Coalition

Response: Comment noted. The Regional Board agrees that the pursuit of other regulatory and possibly legislative solutions holds promise in addressing elevated copper concentrations not just in SIYB, but throughout other marinas in California.

Comment No. 130 **Comment ID:** 482

Comment: Additionally, the CPDA has been true to its mission statement. We have consistently supported UC Sea Grant Extension Program's "Alternative Hull Coatings Study". We were a voting member of "The Senate Bill 315 Committee for Environmentally Superior Hull Coatings". We have been interviewed on local news programs promoting Biocide Free hull coatings and public awareness of copper pollution in San Diego Bay. Currently members of the CPDA are developing and testing several new biocide free hull coatings.

Submitted By: California Professional Divers Association

Response: Comment noted.

Comment No. 131 **Comment ID:** 387

Comment: Question: What happens if we comply with the TMDL's and the project doesn't work and copper is not reduced to acceptable levels? We are going to have our water tested now to see where we stand at this point in time. For the last two years we have been telling our boat owners to have the boat yards apply the lowest toxic paint available to their boats when they are hauled out. That, along with most of the divers

being BMP certified by the diving association should show a reduction in the copper now. If not, something isn't working.

Submitted By: Ann Miller

Response: If the management practices implemented in the marinas don't result in attainment of the dissolved copper water quality objectives, then the TMDL will need to be revisited. Investigators will need to determine if the load reductions were achieved but not the water quality objectives (in this case the TMDL and load reductions would need to be revised), or if the management practices failed to achieve the load reductions (in which case the management practices would need to be revised).

The calculations in the draft TMDL Report indicate that reductions of copper loading to SIYB by 76 percent will result in attainment of the water quality objectives for dissolved copper. This reduction in copper loading is not expected to be instantaneous. Rather, reductions are expected to take place under a long-term program as indicated by the 17-year compliance timeframe. Water column monitoring is an important tool to assess improvements in water quality and is encouraged as well as required under the TMDL.

Comment No. 132 **Comment ID:** 384

Comment: Why does the Regional Board suggest the use of Marina BMPs for divers but does not suggest that Divers use BMPs that already exist through the CPDA? Directing the marinas to mandate a hull cleaners BMP would further delay targets in the federally approved Californias Non Point Source Pollution Control Program Management Measure 4.2e. Boat Cleaning and Maintenance.

They (Marinas) possess no technical expertise in the hull cleaning equipment, antifoulant paint systems, marine growth, fouling and fouling progression. The Regional Board knowing the marinas have no specific diver BMPs would most likely role back the clock on the progress of the existing Divers BMP Certification Program by adopting a marina program that no diver can be educated under.

In the Regional boards view what credentials, expertise or resource do the marinas possess that demonstrate that they are the best available to educate and train divers in BMPs on an on going basis?

It would seem to the CPDA that it is not practical for them (marinas) to hold any educational program for any industry other than their own. This is due in part to the technical nature of the operations of diving, mechanics, sanitation systems services, etc. Difficulties will also arise when diving companies add personnel, personnel change companies or changes to the environmental requirements occur. With all of these issues at stake, it would seem more appropriate to promote the use of divers run BMPs as long as they complied with the TMDL resolution, the marinas BMPs and the Non Point Source Control Program, MM 4.2e Boat Cleaning in Maintenance.

Submitted By: California Professional Divers Association

Response: The Regional Board will not require marina owner/operators to develop a new MP/BMP program for hull cleaners, but rather to use existing information. The marina owners/operators may decide to implement MPs/BMPs such as those that exist through the CPDA. The marina owner/operators may coordinate with the Port to ensure that appropriate training is available and require hull cleaners in the marina to be trained. Training through existing programs such as the CPDA may be adequate. The marina owner/operators may also develop a training program and outreach and education for marina personnel and boat owners in the marina. Examples include brochures describing required MPs and signage around the marina.

Comment No. 133 **Comment ID:** 489

Comment: We are confident that after an initial "Orientation Period" the Regional Water Quality Control Board will prove successful in its efforts to affect legislation banning and or limiting use of copper biocide antifouling paints in SIYB and San Diego Bay to create a level playing field for all stake holders in Region 9.

Submitted By: California Professional Divers Association

Response: Comment noted.

Comment No. 134 **Comment ID:** 382

Comment: Relating to the NPDES permit and the decision by the Regional Board to issue Permits to the Port and the Shelter Island Marinas:

Why did the Regional board include marinas along with the Port as the NPDES permittees?

The marinas in Shelter Island seem to be less able (than the Port) to perform the requirements under "discharges actions" and under the "reasonable forseable methods of compliance" recommended by the TMDL resolution.

Under the current resolution all proposed permittees (ie. the SD Port and the individual marinas in SI yacht basin) would be required to meet the conditions individually not collectively.

How does the Regional Board envision the marinas ability to "Coordinate and oversee commercial demonstration and scientific studies"?
Even more challenging is the suggestion (outlined in the resolution) that the marinas impose conditions in the lease requiring boat owners to follow certain measures. One that

comes to mind is the coating verification. I can not see any practical way the marinas could verify this with any accuracy. With the exception of the Site specific BMPs for each individual marina, I do not see anything that the marinas could do that would actually reduce copper pollution with out the regulatory action to reduce or eliminate copper altogether.

If they (the marinas/yacht clubs) cannot meet these specific requirements how does this effect the overall ability of the regional board to enforcement the TMDL?

It would seem that all permittees must have the opportunity and the means to pratically satisfy the mandated required actions for those actions to be enforceable under an approved TMDL.

Submitted By: California Professional Divers Association

Response: Regardless of the regulatory tool used to implement the TMDL, the marina owners/operators will be held accountable for copper discharges to SIYB, in addition to the Port because the marina owners/operators own or operate a facility on which an activity occurs that results in a discharge of waste, they have knowledge of the discharges, and the ability to control the discharges. The marina owners/operators have leases with the individual boat owners and thus the ability to impose requirements on the boat owners. The copper objective can be achieved through the implementation of requirements and MPs by the Port and the marina owners/operators. The marina owners/operators could verify hull coatings by requiring documentation from the boat yard that applied the coating. Most boats currently have copper antifouling paint so unless documentation is provided, the boat could be assumed to have copper paint. It should be a simple matter for the boatyard to verify the type of paint applied if the information is not already on the invoice for work.

The Technical Report also states that the Port and the marinas will coordinate and oversee commercial demonstration and scientific studies. The Regional Board has not dictated how much responsibility the marina owners/operators will have in the commercial demonstration and scientific studies. The marinas will be expected to assist the Port, but not necessarily take the lead in the demonstrations and studies.

Comment No. 135 **Comment ID:** 381

Comment: Relating to the "Dischargers actions": Hull Cleaners are not under any mandated NPDES action and are stated later in the recommendations under "reasonable foreseable methods of compliance" starting on page 77. Does this mean that the Regional Board is not specifically requiring any action for hull cleaning? If the marinas and port choose to omit any verbage in their actions as it relates to hull cleaning would the regional board have a problem with that approach?

Submitted By: California Professional Divers Association

Response: The Regional Board cannot specify the manner of achieving compliance with the copper objective. Therefore, the Regional Board cannot specify which management practices should be implemented to achieve the copper load and waste load reductions. Rather, the Regional Board will regulate the dischargers through WDRs, waivers or prohibitions to ensure that copper load and waste load reductions are achieved. The pollution control programs of the marina owners/operators and the Port should include management practices to ensure a 28 percent loading reduction from hull cleaning. This does not necessarily require action on the part of hull cleaners. For instance, if a majority of the boats in SIYB converted to nontoxic or less toxic hull coatings, the 28 percent reduction for hull cleaning would be achieved without any actions by hull cleaners.

Comment No. 136 **Comment ID:** 492

Comment: During this "Orientation Period" the CPDA will continue with voluntary compliance of the "Non Point Source Pollution Control Program". We also will be soliciting support from the Regional Board so that we can achieve 100% compliance from the hull cleaning industry. Currently there are only a few companies bearing the costs associated with the management and participation of this program.

Submitted By: California Professional Divers Association

Response: Comment noted. Your voluntary compliance with the nonpoint source pollution control program is commended.

Comment No. 137 **Comment ID:** 512

Comment: The implementation plan should consider an incremental approach, rather than an outright ban on, or phase-out of, copper coatings on boat hulls. Management practices should be used in the first instance to meet the TMDL, then the need for further control measures should be determined.

Submitted By: SD Marina LLC

Response: Copper load reductions are required over a 17-year staged compliance schedule period. The first stage consists of an initial 2-year orientation period during which no copper load reductions are required. The subsequent 15-year reduction period is comprised of three stages during which incremental copper load reductions are required.

The Implementation Plan does not require a ban on copper-based antifouling paints. The Regional Board does not have the authority to require such a ban. However, a gradual phase out over time of the use of copper-based antifouling paints is the most feasible way to meet required copper reductions.

The dischargers should use a variety of management practices to implement the TMDL, including education and outreach, use of nontoxic antifouling paints, and MPs to clean boat hulls. The management practices chosen for implementation are up to the dischargers, but must be capable of meeting the load reduction schedule over the 17-year compliance period.

Comment No. 138 **Comment ID:** 108

Comment: I am very concerned that proposed changes in copper bottom paint regulations have not taken into account our classic wooden vessels which are not suitable for hard paints or epoxies. Please let me know how we can be involved in this process so that our vessels are not compromised.

Submitted By: Ancient Mariners Sailing Society

Response: The TMDL project does not require elimination of all copper discharges into SIYB. The current copper load into SIYB was estimated to be 2,163 kg per year. The TMDL project requires a reduction of the copper loading until a final annual loading of 567 kg is reached. This load allocation of 567 kg per year will allow some boat owners, such as boat owners of wooden vessels, to continue using copper-based paints.

Copper-based antifouling paints are legally registered pesticides subject to USEPA regulation pursuant to the FIFRA and DPR regulation pursuant to the California Food and Agriculture Code. These agencies may consider a variety of regulatory actions that include the imposition of restrictions on the sale and use of copper-based antifouling paints.

Potential actions which the USEPA may consider include amendments to label language, cancellation of uses, pesticide re-registration, and cancellation of registration. The USEPA is scheduled to re-register all copper-based pesticides beginning in 2005. Potential actions that the DPR may consider include pesticide re-evaluation (requirements for additional data from registrants), adoption of regulations, designation of a pesticide as a restricted material, refusal to register, cancellation of registration, and suspension of registration.

We will add your name to a mailing list of interested parties regarding our correspondence with the USEPA and DPR regarding copper-based pesticide issues. This should provide you with contacts at those agencies from which you can get information regarding their public participation processes.

Comment No. 139 **Comment ID:** 657

Comment: The District maintains that the conversion to non-toxic antifouling paint will be market driven, requiring the paint manufacturing industry to develop and provide non-toxic paints and the paint application industry to master application of these products.

Submitted By: San Diego Unified Port District

Response: Comment noted.

Comment No. 140 **Comment ID:** 375

Comment: Marina Owner/Operators Cannot Control Discharge: As the Regional Board well knows, the Clean Water Act contains a citizen's suit provision. If NPDES permits are issued to the marinas, they will become subject to citizen's suits and to enforcement actions in the event that they fail to achieve the goals of the permits. Everyone concedes that the point source of copper in question (whether it is a "discharge" or not) is the individual vessels, which will not be named as permittees under the NPDES permit. This scenario unfairly exposes the marinas to potential liability, both civil and criminal, for the acts of vessel owners over whom they have, at best, limited control, through the cumbersome and awkward means of enforcing contractual agreements.

Failing to issue NPDES permits to the underwater hull cleaners while naming the marina operators would subject the marina operators to potential liability for acts or omissions of underwater hull cleaners over whom they have even less control than they do over vessel owners. What is the marina's remedy if an underwater hull cleaner commits an act that subjects the marina to liability under a citizen's suit or enforcement action by the Regional Board? There is no slip license agreement to terminate, there is no contractual agreement, and there is no insurance that will cover an act that causes "pollution." All comprehensive general liability policies routinely include very broad pollution exclusions. So called "pollution insurance" is prohibitively expensive.

In essence, the draft TMDL would make marina owner(s)/operators) vicariously liable for the acts and omissions of underwater hull cleaners when there is no practical or economically feasible way to obtain insurance against such potential liability or to obtain indemnity directly from the hull cleaner, most of whom probably do not have sufficient monetary resources to reimburse a marina owner/operator for the cost of defending itself against an enforcement action or citizens suit and the cost of paying fines or damages awarded in such actions.

Submitted By: Shelter Island Yacht Basin Group

Response: As discussed in Comment No. 22, the Regional Board is deferring its decision on whether or not to regulate discharges of copper using WDRs that implement NPDES regulations until the implementation phase of the project. The information in the

comment on liability with regard to third party lawsuits will be considered when the Regional Board chooses the administrative tool it will use to regulate copper discharges to SIYB.

The Regional Board disagrees with the comment that "Everyone concedes that the point source of copper in question (whether it is a "discharge" or not) is the individual vessels…" The marina operators themselves are engaged in activities that result in the discharge of waste. In SIYB, marina owners/operators have congregated boats and thereby cause or contribute to the discharge of copper from the large number of boat hulls in SIYB. Approximately 2,200 boats are congregated by seven major marina owners/operators in the semi-enclosed SIYB. Copper leaches, dissolves, ablates, or erodes from the paint on the hulls of these boats into the surrounding water. The high density of boats combined with reduced tidal flushing has resulted in elevated levels of copper in SIYB. Furthermore, because recreational boats are moored in marinas most of the time, the majority of copper is discharged within the marina environment.

The finding that the marina owners/operators are accountable for residual copper discharges emanating from individual boats moored within their leaseholds - as opposed to individual boat owners and users of the marina facility - is consistent with, and analogous to, the Regional Board's regulation of other waste dischargers within the Region. Analogous examples include Concentrated Animal Feeding Operations (CAFOs), Municipal Separate Storm Sewer Systems (MS4s), and roads built by Caltrans. Another important analogy involves the regulation of outdoor shooting ranges. These analogous examples are discussed in detail in the Technical Report. The bottom line is that in each of the analogous examples, the facility owner/operator congregates, concentrates, channels and directs waste directly to surface waters. Although the individual users of the facility generate the waste, the owner/operator of the facility is held accountable because it collects, congregates, concentrates, channels, and directs waste to surface waters. The owner/operator of the facility is responsible for obtaining waste discharge requirements for the discharge from the Regional Board. Furthermore it is more practicable for the Regional Board to regulate the owner/operator of the facility than to regulate each individual user of the facility. Similarly it is more practicable for the Regional Board to regulate marina owner/operators than to regulate each individual boat owner mooring a boat within the marina leasehold.

The Regional Board has the discretion to hold SIYB marina owners/operators accountable for discharges of waste which occur or occurred within the marina leasehold based on three criteria: (1) status as owner or operator of the marina facility on which an activity occurs that results in a discharge of waste; (2) knowledge of the activity causing the discharge; and (3) the ability to control the activity. The SIYB marina owners/operators meet all three of these criteria

Comment No. 141 **Comment ID:** 374

Comment: The Draft TMDL Gives no Rationale for Not Issuing Permits to Vessel Owners/Operators or Underwater Hull Cleaners: In Sections 17.0 and 18.0, the draft TMDL states that it is proper for the Regional Board to consider naming each individual person owning a boat moored in SIYB naming persons engaged in underwater hull cleaning activities in SIYB as a discharger either under a general or individual permit. There is no real explanation given of why these two possibilities are rejected. All that is stated is "it is more practicable for the Regional Board to appropriately regulate individual boat owners indirectly via an NPDES permit issued to the Port of San Diego and/or the SIYB marina owner(s)/operator(s)." See footnote 18, page 69. "It is more practicable for the Regional Board to appropriately regulate individual underwater hull cleaners indirectly via an NDPES permit issued to the Port of San Diego and/or the SIYB marina owners)/operator(s)." See footnote 19. The footnotes go on to state that the Port of San Diego and/or the marina owners)/operator(s) would be held accountable for requiring persons owning boats moored within SIYB and underwater hull cleaners operating within SIYB to meet copper wasteload reductions and implement BMPs. Thus, the only rationale given is that it would be easier for the Regional Board not to do its job and instead to force a few private entities to do it for them.

If general stormwater permits can be issued that cover literally thousands of businesses and individuals, why cannot a general permit be issued that covers only 2,200 vessels? Every vessel in the state of California is either registered with the state of California or with the United States Coast Guard. No one has viewed this as an impossible task. Every motor vehicle in the state of California must be registered with the DMV. There are many more motor vehicles than vessels in the state of California, and somehow the state feels that it can cope with regulating motor vehicles.

Submitted By: Shelter Island Yacht Basin Group

Response: Any decision to issue WDRs or waivers of WDRs to marina owners/operators and not to boat owners and hull cleaners will be due to practical considerations. In the case of boat owners, issuing WDRs to hundreds of dischargers is not practical when copper load reductions can be achieved by issuing WDRs to significantly fewer marina owner/operators. In this case, marina owner/operators have the authority to implement effective management practices within their facilities that will result in reductions in copper loading to SIYB.

Any decision not to issue WDRs to hull cleaners is based on the fact that hull cleaning contributes only about 5 percent of the total copper load to SIYB. The Regional Board's limited resources are better directed toward issuing WDRs to the marinas who can exercise control over the hull cleaners working in their facilities.

We realize that the marina owners/operators will be compelled to pay annual fees as the recipients of WDRs. However, these costs can be passed on to boat owners and hull cleaners operating within marina facilities. In the interest of reducing the overall cost in

time spent by the Regional Board issuing WDRs, and money paid by dischargers in annual fees for WDRs, the Regional Board plans to limit the number of WDRs issued and the number of dischargers compelled to pay annual fees.

Comment No. 142 **Comment ID:** 507

Comment: The draft implementation plan impermissibly requires marina owners and operators to perform government functions.

The implementation plan in the Draft Report calls for marina owners and operators to: conduct boater education programs; conduct demonstrations and scientific studies on alternative coatings; impose controls on boat owners; and provide financial incentives to boat owners to convert. These types of activities have historically been, and are properly within, the purview of a government agency. It is inappropriate for the Regional Board to thrust its responsibilities as an administering agency upon private parties – the marina owners and operators. The Regional Board should perform these functions, consistent with the conclusions of the Carson report, as cited in the Draft Report. For example, to the extent that the Regional Board believes that demonstrations and studies on alternative coatings would be useful, it should conduct them in coordination with paint manufacturers rather than the Port District or marina owners and operators. If the Regional Board believes it is necessary and appropriate to adopt controls on boat owners, provide financial incentives for boat owners to convert to alternative coatings, and regulate hull cleaners, it should do so directly.

Submitted By: SD Marina LLC

Response: The Regional Board disagrees that the dischargers will be required to perform government functions to meet the TMDL. The dischargers will be required to meet the copper allocations and reductions specified in the TMDL. The Regional Board does not and cannot specify the manner of compliance with the copper reductions.

Although it has the authority to do so, the Regional Board lacks the resources to regulate thousands of individual boat owners. Additionally, the regulatory tools available to the Regional Board to regulate copper discharges (WDRs, waivers, and prohibitions) are not well suited to individual boat owners. Thus, the practical approach is regulation of the marina owners/operators and the Port. This issue is discussed in greater detail in Comment No. 175.

Comment No. 143 **Comment ID:** 508

Comment: Monitoring and reporting are unnecessary and not tied to achieving the proposed TMDL.

The Draft Report suggests that monitoring and reporting may be required to implement the TMDL. However, the report concludes that sediment is not a source of dissolved copper in the water in the basin, and there is no support in the record for any conclusion to the contrary. Therefore, it is inappropriate to tie achievement of the TMDL to any monitoring related to the sediment in the basin.

The Draft Report concludes that the net flux of copper from the sediment to the water column is zero, and then hypothesizes that it is theoretically possible that the flux would be greater than zero at some point in the future after other sources of copper have significantly decreased. The report later suggests that studies may need to be conducted concerning the sediment. In light of the report's conclusions regarding the current impact of sediment on the water column, it would be premature and unsupportable to undertake any such studies until the other sources of copper are decreased and the effects of those reductions on water quality are evaluated.

Submitted By: SD Marina LLC

Response: The Regional Board disagrees that monitoring and reporting are unnecessary. Monitoring and reporting are a critical component of TMDL implementation. The dischargers will be required to monitor SIYB waters and provide monitoring reports to the Regional Board for the purpose of assessing the effectiveness of the alternatives implemented, meeting allocations and achieving water quality objectives. Baseline monitoring of the copper concentrations in the water column and sediment is important to assess changes in concentrations over time as the TMDL is implemented.

In the draft TMDL Report, copper in the sediment and its interaction with the water column is identified as a source of uncertainty, and that further study is needed to understand this interaction. While the available data show that sediment currently acts as sink for dissolved copper, this may change as copper concentrations in the water column decrease. Therefore, monitoring is needed and will be required to be obtained by the dischargers to accurately assess the impacts of copper contamination on sediment and benthic life at SIYB.

Comment No. 144 **Comment ID:** 372

Comment: Identifying Marina Owner(s)/Operator(s) as the Sole Recipients of NPDES Permits for Copper that Leaches from Vessels with Copper Antifouling Paint is Inappropriate and Unprecedented.

Section VI of the draft TMDL begins by opining that the Port of San Diego, SIYB marina owners/operators, persons owning boats in SIYB and underwater hull cleaners are all causing or permitting the discharge of copper to SIYB waters. However, the draft TMDL concludes that only the Port of San Diego and the marina owners)/operator(s) should be the recipients of NPDES permits for copper.

The draft TMDL argues that marina owner(s)/operator(s) meet three criteria: (1) status as owner or operator of the marina facility; (2) knowledge of the activity causing the discharge; and (3) the ability to control the activity.

(1)Status As Owner Or Operator Of The Marina Facility:

No one disputes that each member of the SIYB Group is an owner or operator of a marina facility. However, it is equally undisputed that none of them owns or operates all the vessels that are the actual source of copper. The draft TMDL cites a number of cases establishing the legal rationale for naming a lessor/licensor in an NPDES permit that is issued to the lessee/licensee (FOOTNOTE: See SWRCB Order Nos. WQ 87-6, 87-5, 86-18, 86-16, 86-15. :END FOOTNOTE). Many such cases were cited in the draft TMDL's argument that the Port should properly be named in the NPDES permit. Review of these cases establishes that the lessor/licensor is named in addition to the lessee/licensee. In other words, applying these cases to the marina situation, the marina should only be named in addition to and secondarily to the lessee/licensee, i.e., the vessel owner/operator.

In SWRCB Order No. WQ 90-3, the State Board specifically addressed whether the San Diego Unified Port District, as lessor, should or should not be primarily responsible for monitoring programs and day-to-day operations of the operators of the point source and held it should not. In other words, if an NPDES permit is appropriate (which we contend it is not), it should be issued to vessel owners/operators of vessels, and the marinas should only be named as secondarily liable and should not be responsible for monitoring programs. See WQ 90-3 at pages 12-13.

Submitted By: Shelter Island Yacht Basin Group

Response: Marina owner/operators can be regulated through issuance of WDRs for the reasons discussed in the Technical Report regardless of whether they are "primarily" or "secondarily" responsible. Any decision to issue WDRs or waivers of WDRs to marina owners/operators and not boat owners will be due to practical considerations such as the administrative difficulty of regulating thousands of individual boat owners compared to significantly fewer marinas, and the fact that marina owner/operators have the authority to implement effective management practices within their facilities that will result in reductions in copper loading to SIYB.

State Board Order No. WQ 90-03 upholds this approach. The order remanded the WDRs at issue in that case back to the Regional Board to clearly specify that the Port is not primarily responsible for the monitoring program and day-to-day operations of the facility owned by the lessee. The Order stated that the requirements should more clearly place the responsibility for day-to-day compliance and compliance monitoring on the operator and should clearly specify the appropriate responsibilities of the Port. In SIYB, the marina owners/operators are primarily responsible for the day-to-day operations of the facilities that result in a discharge of copper.

Comment No. 145 **Comment ID:** 464

Comment: As originally published for public review on October 24, 2003, the Draft Report relied heavily on the Clean Water Act's National Pollutant Discharge Elimination System ("NPDES") permitting program as the mechanism by which the Board planned to achieve any required reductions in copper loading to the waters of the Shelter Island Yacht Basin. NMMA and MOAA, among others, submitted extensive comments stating the bases for their position that the NPDES program is jurisdictionally incapable of addressing copper resulting from the passive leaching of bottom paints from vessels. In addition, we believed then and continue to believe that there are mechanisms other than traditional permitting (whether through the NPDES program or through the State's Waste Discharge Requirement program) that are more appropriate and will be more effective in dealing with any concern resulting from this unique nonpoint source discharge.

Submitted By: NMMA and MOAA

Response: Comment noted. Please see Comment No. 22 for further discussion regarding the Regional Board's decision to defer a determination of whether passive leaching is a nonpoint or point source discharge.

Comment No. 146 **Comment ID:** 659

Comment: Perhaps the most productive outcome of this TMDL, however, may be that it will have brought significant attention to the issue.

Submitted By: San Diego Unified Port District

Response: Comment noted.

Comment No. 147 **Comment ID:** 319

Comment: RBOC also urges the Board to consider reasonable alternatives to the proposed action. The boating community has actively participated in the development of a "best management practices" approach to environmental issues that has produced noted success for the protection of the environment on challenging issues such as the presence of MTBE in bodies of water that are sources of drinking water. It would appear that a collaborative effort could be a productive and effective approach to the copper issue as well.

Submitted By: Recreational Boaters of California

Response: The Regional Board agrees that a collaborative effort could be of great benefit to the environmental health of SIYB, and the overall goal of reducing the discharge of

dissolved copper. The Regional Board has considered alternatives to the proposed actions, as described in the draft TMDL Report. The Board has determined that TMDL adoption is the most appropriate action. Furthermore, the Board is obligated under the CW Act, section 303(d), to develop and adopt TMDLs for waterbodies that have been identified as water quality limited segments on the State's CWA list. SIYB was added to this list in 1996.

The TMDL process is designed to accommodate collaboration with all interested and affected stakeholders. As described in Appendix 8 of the draft Report, the Regional Board has participated in several public forums since this project began in 2000. There will be several opportunities for collaboration when the actions described in the Implementation Plan are carried out.

Comment No. 148 **Comment ID:** 447

Comment: Moreover, it appears that the Regional Board staff has reconstrued the traditional meaning of waste discharge requirements to be mere subsets of the NPDES system:

"All current and proposed discharges must be regulated under WDRs, waivers, or a prohibition, or some combination of these administrative tools. " (pg. 37) "Discharges of pollutants from point source waters of the United States are regulated under WDRs that implement National Pollutant Discharge Elimination System (NPDES) regulations. There are plausible arguments that passive leaching of copper from copper-based antifouling paints on boats in marinas constitutes a discharge of pollutants from point sources, and should be regulated under WDRs that implement NPDES regulations. However, to develop and apply appropriate numeric effluent limits and other conditions needed for NPDES requirements for passive leaching of copper to marina or individual boat owners would be complex and controversial. Regardless of whether the copper discharge comes from a point source or a nonpoint source, the requirements would essentially be the same. " (pg. 38; see also footnote 31 on pg. 67)

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest

Response: In fact the opposite is true. NPDES requirements are a subset of the WDRs issued by the State. While nearly everyone refers to waste discharge requirements issued by the State for discharges of pollutants from point sources to navigable waters of the United States as "NPDES permits," in fact they are not NPDES permits. Technically, such waste discharge requirements are issued by the state pursuant to independent state authority (not authority delegated to the state by the USEPA or derived from the Clean Water Act). Pursuant to Chapter 5.5 of the Porter-Cologne Act, in order to avoid the issuance by the USEPA of separate and duplicative NPDES permits for discharges in California that would be subject to the Clean Water Act, the State's waste discharge

requirements for such discharges implement the NPDES regulations and entail enforcement provisions that reflect the penalties imposed by the Clean Water Act for violation of NPDES permits issued by the USEPA.

Due to the fact that NPDES requirements serve in lieu of NPDES permits, and, substantively, contain all the terms and conditions necessary for an NPDES permit, many people refer to NPDES requirements as "NPDES permits" and to the dischargers as "permittees." The prevalence of this common shorthand usage does not, however, alter the underlying legal reality that NPDES requirements are just a particular subset of waste discharge requirements for discharges that would be subject to NPDES permits in the absence of state regulation that is, at least, equivalent to what would be required by NPDES permitting.

Comment No. 149 **Comment ID:** 456

Comment: Moreover, if the Regional Board staff believes these other agencies erred, then the appropriate action is to insist that DPR reconsider their original findings rather than to impose responsibility for cleanup and compliance on third-parties only peripherally connected to the products in question.

Indeed, by the Regional Board staff's own analysis, no TMDL or Implementation Plan is necessary once the Basin Plan is amended to reflect the fact that copper-based antifouling hull paints are the primary cause for water quality objectives being violated in San Diego Bay:

"Section 13247 of the California Water Code requires state agencies to comply with water quality control plans (Basin Plans) in carrying out activities which may affect water quality. Under this provision, DPR has an obligation to ensure that registration and use conditions for copper-based antifouling paints would not violate the TMDL for SIYB. "

If that is true, then it is not necessary to impose waste discharge requirements or NPDES permits on marina owner/operators in order to restore beneficial uses. DPR will be required to prohibit the sale or use of copper-based antifouling hull paints for use on any ship moored or operating within San Diego Bay.

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest

Response: This comment is misleading in its statement that a TMDL or Implementation Plan is unnecessary once the Basin Plan is amended. Rather, the Basin Plan will be amended through adoption of this TMDL, which identifies copper-based antifouling paints as the primary source of copper to SIYB.

DPR's current registration of copper anti-fouling paints for sale in California is not a violation of Water Code section 13247. In California, the DPR, State Board and Regional Boards have overlapping mandates and authorities bearing on pesticides and water quality. In order to promote cooperation to protect water quality from the adverse effects of pesticides, the DPR and the State Board signed a Management Agency Agreement (MAA). The MAA, and its companion document, "The California Pesticide Management Plan for Water Quality," strives to coordinate interaction, facilitate communication, promote problem solving, and ultimately assure the protection of water quality.

The DPR is actively coordinating with the State Board and the Regional Board within the framework of the MAA, to help resolve the copper anti-fouling paint water quality problem. The appropriateness of restrictions or a ban on copper-based antifouling paints will be jointly evaluated by these agencies through the MAA or by the State legislature. In the meantime, it is appropriate for the Regional Board to exercise its authority to mandate copper load reductions in SIYB so that progress can be made towards achieving the copper water quality objectives.

Comment No. 150 **Comment ID:** 338

Comment: EPA supports the use and application of alternative boat hull coatings, as described in both the implementation plan and Sea Grant publications. These alternatives are viable for two reasons: a) they are non-toxic to aquatic life and b) they avoid undue economic hardship when applied during regular boat hull maintenance schedules over 15 years, consistent with the proposed implementation compliance schedule.

Submitted By: U.S. Environmental Protection Agency

Response: Comment noted. The Regional Board agrees that nontoxic and less toxic coatings implemented over a 15 - 17 year time schedule is the most viable option at this time.

Comment No. 151 **Comment ID:** 156

Comment: I have lived on a sailboat for over 12 years and have observed that the water quality in the Bay has cleared considerably since I bought my first boat in 1992. At that time, I was unable to see the rudder on my boat or further down than a few inches. Now, I am able, not only to see the rudder on my boat but also the keel and many times the bottom under my boat.

I have also observed a marked increase in fish and fowl that live in and around the Bay. The blue heron, night heron, snowy egret and duck population are much more in evidence than in years past. Additionally, large schools of small and large fish are also present along with skates and rays. As we all know the sea lion population has increased

significantly. It is obvious to me that this increase indicates that our Bay is indeed supporting multiple varieties of sea and air creatures.

Submitted By: Gayle O'Connell

Response: The Regional Board is pleased that collaborative efforts to improve water quality in San Diego Bay have resulted in noticeable progress. The Regional Board notes that management practices to eliminate or reduce pollution in the Bay have improved tremendously over several decades. Our goal is to continue improving water quality until it meets or exceeds all applicable water quality objectives and beneficial uses established for the Bay. Currently, an abundance of data show that water in SIYB exceeds the numerical objectives for dissolved copper. The TMDL project is intended to correct these chronic exceedances.

Comment No. 152 **Comment ID:** 665

Comment: However, many of the alternative coatings work by applying a very slick surface to the bottom hull (see pg. 94). Theoretically, fouling organisms are sheered off the hull when boats reach sufficient velocity across the water. However, the vast majority of sailboats presently moored in SIYB are incapable of meeting the minimum speed requirements necessary to make such coatings effective. To the extent that the Board staff believes adequate alternatives are available, the safety and efficacy of such products must be demonstrated if adverse environmental impacts are assumed to be mitigated.

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest

Response: According to Sea Grant, nontoxic antifouling strategies combine a nontoxic boat bottom with a companion strategy. Examples of companion strategies include:

1. Frequently cleaning the coating;
2. Storing the boat out of water; and
3. Surrounding the boat with a slip liner and adding freshwater to discourage marine fouling growth.

Thus, speed alone is not necessary to make nontoxic antifouling strategies effective on sailboats. A number of nontoxic and less toxic alternative antifouling strategies are available and are in limited use in San Diego Bay on sailboats. More information on alternative coatings can be found in Appendix 9 of the Technical Report.

Comment No. 153 **Comment ID:** 570

Comment: Paragraph 13 discusses the Implementation Plan, which envisions issuing NPDES permits to the marinas. This leads to another important concern, the uncertainty over how the SIYB Group is to comply with the proposed Basin Plan Amendment. All of the discussion in the draft TMDL is in terms of dissolved copper. It is our understanding that if NPDES permits are issued to marinas, as stated in the draft resolution, the TMDL limits on discharges will be stated in terms of total recoverable copper. No information is given on how the correlation between total recoverable copper and total dissolved copper will be made and how it will affect the actual limits placed on "discharges." It is likely that when the dissolved numeric standard is converted to total recoverable copper, due to excessive safety factors applied in the draft TMDL, the marinas will be allowed an even smaller total maximum daily load than is stated in the draft TMDL. This will impact the technical and economic feasibility of compliance.

Submitted By: Shelter Island Yacht Basin Group

Response: The administrative tool to be used to regulate the discharges of copper to SIYB will be determined during the implementation phase of the TMDL. Likewise, the details of the monitoring requirements of any permits will be worked out during this phase. However, since the allocations, water quality objectives and numeric targets are currently expressed in terms of dissolved copper, it seems reasonable that the dischargers will be required to monitor for dissolved copper rather than or in addition to total recoverable copper. Conversion factors can be used to convert from total copper to dissolved copper using a default value or site-specific data if available following guidance provided by the USEPA (USEPA 1996).

Reference - USEPA. 1996. The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit form a Dissolved Criterion. Office of Water. EPA 823-B-96-007.

Comment No. 154 **Comment ID:** 471

Comment: Nearly as important as pursing a site-specific objective for dissolved copper during an orientation period is the creative use of voluntary efforts by the marinas and the community of boat owners. The revised Draft Report very appropriately identifies third party efforts of this sort as one of the principle mechanisms by which any TMDL would be implemented. NMMA and MOAA strongly support that conclusion.

Submitted By: NMMA and MOAA

Response: The Regional Board agrees that coordination between the boating community and the Regional Board will result in the mutually desired result of improved water quality. However, the primary purpose of MMAs and MOUs is not to encourage voluntary measures. Third party agreements, such as MMAs and MOUs, are designed to

ensure implementation of pollution control programs that would be developed to comply with WDRs, waivers of WDRs, or basin plan prohibitions. The Regional Board is responsible for regulating the discharge of residual copper with WDRs, waivers of WDRs, or basin plan prohibitions whether or not a third party agreement is in place.

Comment No. 155 **Comment ID:** 472

Comment: Local marina operators already have taken a major step in this direction by adopting a Clean Marinas Program that includes Best Management Practices addressing a number of activities. Programs such as this place the expertise of the local boating community in the service of the environment, and allow those with the greatest knowledge of local conditions to use that knowledge to craft solutions that are likely to be more creative and more efficient than those imposed from the outside. NMMA and MOAA would be willing to lend their nationally derived expertise to a larger coalition of stakeholders to help develop the voluntary solutions that will be needed to implement any Shelter Island TMDL addressing the complex and still-evolving issues surrounding antifouling coatings. We urge the Board to remember and make good on its promise to explore such voluntary industry efforts.

Submitted By: NMMA and MOAA

Response: The Regional Board is encouraged to hear that local marinas have participated in the Clean Marinas Program, and that NMMA and MOAA are willing to help develop solutions needed to address the complex issues surrounding antifouling coatings. The Regional Board appreciates any voluntary actions taken by marina owners/operators to reduce copper discharges in SIYB. However, we must clarify that implementing voluntary measures is not an alternative in the implementation plan. As set forth in the implementation plan, the Regional Board is responsible for regulating the discharge of residual copper with WDRs, waivers of WDRs, or basin plan prohibitions. Complying with the regulatory tools used by the Regional Board to regulate copper discharges will not be voluntary.

Comment No. 156 **Comment ID:** 473

Comment: Finally, we urge the Board in the implementation of any TMDL for Shelter Island Yacht Basin to maintain close coordination with all stakeholders throughout the process. No matter how defined, the costs and dislocations of an enterprise of this sort will be significant. By working closely with those most directly involved, the Board can assure that this disruption is no greater than it absolutely needs to be. By periodically evaluating the progress being made toward the water quality objective, the Board can make informed judgments about the percentage of vessels that might need to be encouraged to use alternative bottom treatments. Continually monitoring the timing and scope of the remedy can go far to avoid unnecessary impairments of what, today, is one of the most vital and vibrant boating economies in the United States. This level of

attention and care in any implementation phase could be the difference between a smooth and successful implementation and one that results in massive, unintended dislocations of the local community. If the Board moves forward with a TMDL for Shelter Island, the community has every right to look forward to such an interactive and collegial partnership throughout the period of its implementation.

Submitted By: NMMA and MOAA

Response: The Regional Board agrees that coordination with stakeholders is a vital part of the TMDL implementation process. The Board has every intention of working with a stakeholder group to strategize on implementation, and ultimately working toward the mutual goal of meeting water quality objectives and restoring beneficial uses in SIYB.

Comment No. 157 **Comment ID:** 339

Comment: The San Diego Advisory Committee for Environmentally Superior Antifouling Paints has reviewed the report "Transitioning to Non-Metal Antifouling Paints on Marine Recreational Boats in San Diego Bay" by Dr. Richard Carson. The Committee was established and the report was prepared pursuant to Senate Bill 315 that was passed in 2001.

After reviewing the report, the San Diego Advisory Committee for Environmentally Superior Antifouling Paints voting members unanimously find the following:

1. To meet copper water quality standards, which are currently exceeded in some areas of high boat density, it recommended that a gradual phase-out of toxic bottom paints, specifically copper leaching and copper ablative bottom paints on vessels 25 meters in length and under, be implemented in San Diego County. Specifically, it is recommended that this phase-out be implemented by the appropriate agencies and completed within the next 7-12 year period (not including the 2-3 year commercial demonstration period). In addition, there is a need for the state legislature to consider whether a gradual phase-out of toxic bottom paints is necessary in estuaries statewide, where water quality is impaired due to copper from boat bottom paints.

2. It is economically and environmentally advantageous to initially target the application of nontoxic bottom paints to new boats and boats that need to be stripped of old bottom paint or repainted.

3. It is recommended that a two- to three-year large-scale commercial demonstration program, to assist boaters, boatyards, marinas, and underwater hull cleaners in learning to select, apply, and maintain nontoxic bottom paints for recreational boats, be implemented with seed money from the state.

4. It is recommended that a four-year large-scale demonstration project, beginning concurrently with the commercial demonstration project, to evaluate the performance of

nontoxic bottom paints and hull cleaning methods, including lifespan of the paint and its effect on fuel consumption and boat speed, while providing widely disseminated education for the boating industry and boat owners, be implemented.

5. It is recommended that a differential price structure be developed to create incentives for nontoxic bottom paint uses.

6. It is recommended that divers should be educated in the maintenance and cleaning of nontoxic bottom paints.

The San Diego Advisory Committee for Environmentally Superior Antifouling Paints hopes that the findings will assist the State of California in addressing water quality for recreational boat basins not only in San Diego, but also statewide.

Submitted By: Environmental Health Coalition

Response: The Carson report was forwarded to the State legislature for review as mandated under Senate Bill 315 (Alpert). Many of the findings reached in the Carson report as well as some of the recommendations contained in this comment were incorporated into the SIYB Implementation Plan. For example, the schedule calls for a two-year orientation period during which time education and outreach should be a priority.

Comment No. 158 **Comment ID:** 666

Comment: As an organization representing dischargers the CPDA would like to bring to your attention that we have developed and implemented a Diver Underwater Hull Cleaning Best Management Practices (BMP) Certification Program in accordance with "The California Non Point Source Pollution Control Program" Management Measure 4.e Boat Cleaning and Maintenance. Our program consists of one eight hour training session incorporating a Best Management Practices (BMP) Training Manual, Photo ID cards, and Online (Internet) tracking system for divers who successfully complete the course. This program has been in operation beginning in June 2001. We have certified over 200 divers State Wide. Additionally, we have provided BMP certification in partnership with "The Santa Monica Bay Restoration Foundation" in Marina Del Rey. Our program has also been attended by boat owners, a Regional Water Board member and Marina operators. We are confident after further review that the Regional Water Quality Control Board will find this program ready for "Third Party Administration".

Submitted By: California Professional Divers Association

Response: The Regional Board is pleased that CDPA has developed and is implementing a BMP certification program for underwater hull cleaners. What is meant by "Third Party Administration" is not clear, but we assume this refers to third party agreements between the Regional Board and discharger organizations and/or the Port based on

implementation of pollution control programs. The diver BMP certification developed by CDPA could serve as the basis for such third party agreements.

Comment No. 159 **Comment ID:** 549

Comment: The regulation of residual pesticides is an ongoing, nationwide issue in numerous agricultural water resources management and urban runoff regulatory situations. Oftentimes, the water quality and agriculture chemical regulating agencies have overlapping jurisdiction. In an attempt to resolve apparent conflicts between agency mandates, a management agency agreement was entered into between State Department of Pesticide Regulation ("DPR") and the State Water Board. These agencies commit staff to work toward the joint resolution of water quality problems associated with pesticide use. Representatives of these agencies have been meeting for some time, without success, to jointly resolve the residual copper problem. The RWQCB's proposed SIYB/TMDL appears to signal the agencies' ultimate inability to resolve copper discharges through inter-agency cooperation. An impasse appears to have occurred between these agencies' requirements to maintain receiving water qualities and to permit the use of a registered pesticide. It is with great distress that the Port District recognizes that the resolution of this impasse appears to be falling in the laps of the District and the SIYB marinas to work out this statewide issue through the legal system with the RWQCB.

Submitted By: San Diego Unified Port District

Response: The Regional Board disagrees with this comment. The Regional Board has been and will continue to coordinate with the DPR pursuant to the 1997 MAA between the State Board and the DPR. Under the MAA, the State Board, Regional Boards and the DPR are committed to working together to use their respective authorities to resolve water quality problems that are related to pesticide use. This includes the development of TMDLs by the Regional Board.

Comment No. 160 **Comment ID:** 548

Comment: The Port District urges the RWQCB to pursue a statewide regulatory strategy with respect to nonpoint source pollution from the passive leaching of copper from the tens of thousands of boat hulls throughout the state. Clean Water Act Section 319(a) has long required states to address nonpoint source pollution. States have been required to identify categories of nonpoint sources that significantly contribute to pollution of navigable waters, and to develop management programs for controlling that pollution. At a minimum, such a management program is to include BMPs, education, training, and other elements. Although regulation of nonpoint sources is admittedly unpopular and difficult to implement, it remains the states' responsibility to do so. The RWQCB's proposed SIYB/TMDL inappropriately attempts to shift that responsibility to the District, and the marinas.

Submitted By: San Diego Unified Port District

Response: The Regional Board disagrees that the TMDL inappropriately shifts responsibility for copper discharges at SIYB; holding the persons responsible for discharges of copper to SIYB accountable for meeting copper load reductions is appropriate. The development of TMDLs represents one tool for resolving water quality problems that are often associated with nonpoint source pollution. Be assured that the Regional Board will pursue a strategy of cooperation with other agencies that regulate pesticides. However, direct regulation of the copper discharges using the Regional Board's administrative tools is a viable implementation strategy that cannot be ruled out at this time.

Comment No. 161 **Comment ID:** 587

Comment: 14) "Compliance Monitoring. Water quality monitoring will be required to assess compliance in SIYB with the copper waste load reductions specified in this TMDL and with the water quality objectives for copper." (see pg. 10 of Technical Report)

The ability to comply depends on whether permit limits are specified as dissolved copper or total recoverable copper.

The ability to comply depends on whether permit limits are specified as a water column concentration for copper of as a percent reduction from current loading.

The ability to comply depends on the location and depth at which samples are taken.

- The ability to comply depends on the frequency of sampling and how the data is averaged when reported.

- The ability to comply depends on the true ambient background concentration of dissolved and/or total recoverable copper in San Diego Bay (outside the influence of SIYB).

- The ability to comply depends on the true ratio between total recoverable copper and dissolved copper (rather than the ratio assumed by the Regional Board).

Until the Regional Board's assumptions are replaced with real-world data, the ability and cost to comply is unknown. Therefore, the reasonability and appropriateness of the TMDL and related implementation procedures cannot be assessed.

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest

Response: The questions posed in the comment are relevant to the implementation of the TMDL, but need not be addressed at this time. The details of implementation including any required monitoring, WDRs, waivers, and/or prohibitions used to regulate the discharge of copper to SIYB will be established during implementation via a separate process.

Comment No. 162 **Comment ID:** 552

Comment: Ultimately, the issue will be resolved when copper-free paints have replaced those that contain copper or when the water quality standard for copper is amended (Footnote 12) to incorporate site-specific criteria. (footnote 13) It is unreasonable to assume that SIYB, a 2,300-boat basin, will be able to generate the market forces necessary to effect these changes.

Submitted By: San Diego Unified Port District

Response: The Regional Board believes that copper levels at SIYB will be restored to levels that do not adversely impact beneficial uses as a result of the implementation of the TMDL, which does not rely, but may occur in concert with, the development of an SSO or the enactment of a ban on copper-based paints.

Research into alternative antifouling strategies by paint manufacturers is increasing and is likely to continue to do so. The TMDL represents additional incentive for manufacturing companies to continue with research and product development into alternative antifouling strategies.

Comment No. 163 **Comment ID:** 550

Comment: Elsewhere in California, similar statewide pesticide regulatory situations have been successfully resolved through agency cooperation. A Diazinon TMDL for rivers in San Diego County, for example, was resolved by the phased-in, statewide ban of Diazinon by DPR. Similarly, aquatic pesticide spraying through a point source, as discussed extensively in previous comments, is now being regulated through a statewide NPDES permit. These regulatory approaches apply statewide and represent a consistent approach to the balancing of water quality and pest control needs. Implementing the proposed SIYB/TMDL through issuance of an NPDES permit, WDRs, or a Cleanup and Abatement Order is likely to wreak havoc and threaten the economic viability of recreational boating in SIYB, and San Diego Bay, as a whole.

Submitted By: San Diego Unified Port District

Response: The Regional Board disagrees that implementation of the proposed TMDL will wreak havoc and threaten the economic viability of boating in California. Please refer to the Regional Board's response to Comment No. 201.

The Regional Board agrees that agency cooperation is extremely important in regards to this TMDL. Therefore, the Implementation Plan calls for continued Regional Board coordination with the agencies responsible for regulating pesticides in California. However, actions by the dischargers are needed in the event that interagency cooperation does not result in achieving the copper TMDL in Shelter Island. Both approaches should move forward together.

Comment No. 164 **Comment ID:** 553

Comment: In summary, while the Port District is supportive of the RWQCB's attempts to address the statewide dissolved copper issue, we believe that the approach proposed in the SIYB/TMDL is flawed for the reasons set forth above. The District welcomes the opportunity to work with the RWQCB, and the stakeholders throughout the region and the state, to focus on this important water quality issue.

Submitted By: San Diego Unified Port District

Response: Comment noted.

Comment No. 165 **Comment ID:** 556

Comment: The Department of Boating and Waterways (DBW) supports the goal of the Shelter Island Yacht Basin (SIYB) TMDL for Dissolved Copper, which would lead to a 76% reduction in copper loading phased in over the next 17 years.

This implementation schedule generally meets the criteria developed in the recently completed economic study by Dr. Richard Carson, Maria Damon, Leigh Johnson, and Jamie Miller, titled "Transitioning to Non-Metal Antifouling Paints On Marine Recreational Boats in San Diego Bay," which was funded by DBW in cooperation with the San Diego Advisory Committee for Environmentally Superior Antifouling Paints mandated by SB 315 (Alpert).

Submitted By: Department of Boating and Waterways

Response: Comment noted.

Comment No. 166 **Comment ID:** 341

Comment: To strengthen and clarify the TMDL, EHC requests that the language to compel use of non-toxic bottom coatings on boats in the SIYB be directed. We would also like to remind the Board that the San Diego Advisory Committee for Environmentally Superior Antifouling Paints, a group that was established pursuant to

Senate Bill 315 and whose membership included many of the stakeholders affected by this Tentative Resolution, looked closely at the issue of antifouling paints and recommended in a letter to State agencies and legislators that a complete phase-out of copper-based paints was necessary and should be implemented by the appropriate agencies and completed within the next 7-12 year period (not including a 2-3 year commercial demonstration period) in order to meet copper water quality standards. As a result, it is clear that all interested parties, including dischargers, recognize the important need to address the use of copper-based paints and the feasibility of achieving compliance within an expedient time frame. Non-toxic bottom paints represent an excellent pollution prevention alternative to this problem and should be aggressively pursued.

In light of that letter and the supporting economic analysis by Dr. Richard Carson, EHC believes that proposed staged compliance schedule for 17 years is far too long. We believe that a shorter period will drive the necessary economic factors to achieve compliance with discharge limits and is achievable. This was demonstrated with the ban on new dewatering discharges resulting from a Regional Board action in 1991. In that case, claims that development would grind to a halt and that there would be dire economic consequences were made by the dischargers if no more dewatering discharges were allowed into San Diego Bay. With history as our teacher, we now see that those claims did not come to fruition and that an aggressive ban on dewatering discharges drove new ways of planning for development in Downtown which has developed at a rapid rate. In the alternative, when compliance schedules are lenient, some discharges will not be compelled to act immediately, which serves to the detriment of the public and health of the Bay, as well as the goals of the NPDES permit.

Submitted By: Environmental Health Coalition

Response: The Regional Board is prohibited from specifying the manner of achieving compliance with the specified copper load reductions. By mandating the use of nontoxic bottom coatings, the Regional Board would be specifying the manner of compliance. We do believe that nontoxic bottom coatings are the most reasonably forseeable method of compliance at this time. The Implementation Plan includes a discussion on transitioning to nontoxic and less toxic alternatives. In addition, the Regional Board will continue to cooperate with other governmental agencies on TMDL implementation, including agencies having legal authority over the registration, sale, and use of copper-based antifouling paints in California.

The the 17-year compliance timeframe is appropriate. The Carson Report estimated that a 66 percent copper reduction could be achieved in all of San Diego Bay in five years at a cost of approximately twenty million dollars. The same 66 percent copper reduction could be achieved in 12 years at a cost of one million dollars. Since the Carson Report was developed, the Regional Board has revised the TMDL to require a 76 percent copper reduction instead of 66 percent copper reduction. The Regional Board is also emphasizing education, commercial demonstrations, and scientific studies as recommended in the Carson Report, and is allotting a 2-year orientation period for this

purpose. For copper reductions, a 15-year compliance schedule was incorporated into the Implementation Plan. This time period agrees with the 15-year time period needed for lowest-cost copper-based paint phase-out.

The Regional Board is required to consider economics in establishing the TMDL. For this reason, the Implementation Plan calls for a 15-year compliance schedule at an estimated cost of one million dollars instead of a 5-year compliance schedule at an estimated cost of twenty million dollars.

The Regional Board agrees that the imposition of regulatory options for copper antifouling paint is likely to improve the economics of nontoxic and less toxic hull coating application and formulation technology. The adoption of the TMDL and implications for education, commercial demonstrations, and scientific studies will work to improve these economics. The 17-year compliance time frame will allow time for economic improvement as well as application and formulation technology improvements for nontoxic and less toxic hull coatings.

Comment No. 167 **Comment ID:** 557

Comment: Although DBW supports the reduction of copper in the SIYB, we consider the resulting regulatory burden on marina and yacht club owners and operators to be disproportionate and ultimately unworkable. Marina owners should not be placed in the awkward position of being police officers over their tenants, thereby blurring the distinction between businesses operating recreational facilities and adjunctive law enforcement officers.

Submitted By: Department of Boating and Waterways

Response: The Regional Board disagrees with this comment. The Regional Board has the discretion to hold SIYB marina owners/operators accountable for discharges which occur or occurred within the marina leasehold based on three criteria: (1) status as owner or operator of the marina facility at which an activity occurs that results in a discharge of waste; (2) knowledge of the activity causing the discharge; and (3) the ability to control the activity. The SIYB marina owners/operators meet all three of these criteria.

Marina owners/operators exercise control and enforcement over boat owners and their discharges by way of conditional lease or license agreements with boat owners. These contract agreements are the key to the marina's legal authority to exercise control over residual copper discharges from boat hulls within the marina leasehold. By way of these conditions, the marina owners/operators can control the number of moored boats, the types of hull coatings used, and hull cleaning activities allowed within the leasehold. Marina owners/operators can also require the use of MPs by boat owners and hull cleaners and require boat owners to provide proof of hull coating composition.

Comment No. 168 **Comment ID:** 658

Comment: The RWQCB's attempt to shift the State's responsibility for resolving water quality impacts from copper antifouling paints to the District and its tenants is unacceptable.

Submitted By: San Diego Unified Port District

Response: The Regional Board disagrees with this comment. Issuing WDRs or waivers to the Port and/or marina owners/operators are appropriate alternatives for regulating discharges of copper to SIYB. Please see our response to Comment No. 535 for further discussion.

Comment No. 169 **Comment ID:** 344

Comment: That the Shelter Island Yacht Basin is the subject of a 1998 listing for copper is not in dispute. Neither is it a matter of contention that the Board is obliged to develop a TMDL for that water body and, by appropriate means, to work toward remedying any impairment of its water quality.

Submitted By: NMMA and MOAA

Response: Comment noted.

Comment No. 170 **Comment ID**: 513

Comment: The two-year period prior to initiating the phase-out is arbitrary – according to industry experts (as reported to the Regional Board on September 7, 2004), it may take much longer to find a suitable replacement and begin the conversion process.

Submitted By: SD Marina LLC

Response: As noted in Figure 20.1, the initial two-year orientation period is an initial stage where load reductions are not required. However, this is not to say that all research must be completed in this time period. Scientific studies to find suitable copper paint replacements are expected to span the entire compliance schedule of 17 years. In fact, studies for alternative antifouling strategies have already been initiated. Appendix 9 of the Draft TMDL Report describes a number of alternative coatings for which research has begun. These products are presently available to consumers.

Comment No. 171 **Comment ID**: 656

Comment: Footnote 10 Included among the RWQCB's list of sources was the transient docks at the Harbor Police station on Shelter Island. Although the majority of the District's Harbor Police boats have been converted to nontoxic hull paint, it is unclear how it is anticipated that the District will be able to "control" the use of nontoxic hull paint on those boats that occupy the 31 slips in the District's transient facility located at the entrance to SIYB. Given that transient slips may be used only a maximum of 10 days at a time by a particular vessel, this facility has the potential to have more than 1,100 boats coming and going during any one year.

Submitted By: San Diego Unified Port District

Response: This TMDL does not prohibit the discharge of copper from boat hulls. The exact means of compliance with the required copper reductions will be determined by the dischargers. If necessary, the Port could reserve a certain number of slips for transient boats painted with copper as long as passive leaching from these boat hulls does not result in an exceedance of the TMDL.

Comment No. 172 **Comment ID**: 503

Comment: Boats travel from harbor-to-harbor, marina-to-marina, and state-to-state. If each local agency regulated the types of coatings allowed on boats entering the waters within its jurisdiction, there is a potential for inconsistent requirements and conflicts as boats move about the country. Boat owners cannot simply change coatings at-will when entering a different bay or marina. As discussed above, this may rise to the level of a constitutional violation, but in any event it would be impractical or impossible for boat owners to comply.

Submitted By: SD Marina LLC

Response: This TMDL was developed to address elevated copper levels only at SIYB. The copper allocations require a reduction in copper loading to SIYB. The means of compliance with the required reductions will be determined by the responsible parties, not by the Regional Board. The TMDL is unlikely to have an impact on transient or visiting boats. Rather, implementation of the TMDL will likely rely on reducing copper loading from boats that are regularly moored at SIYB. The most feasible way to meet the copper reductions specified in the TMDL is for resident boats to switch to nontoxic alternative coating strategies.

Comment No. 173 **Comment ID:** 389

Comment: The Regional Board can't mandate the manner of compliance. Improving tidal circulation or bioremediation should be considered.

Submitted By: Ann Miller and Shelter Island Yacht Basin Group.

Response: We concur that the Regional Board cannot mandate the manner of compliance with the required load reductions specified in the Technical Report. Resolution No. R9-2005-0019, finding 13, states that actions will be accomplished by the Regional Board, other governmental agencies, and identified dischargers of copper. Implementation alternatives are described in the Implementation Plan portion of the draft TMDL Report.

The Technical Report does not specify the manner of compliance. The Report does, however, discuss the reasonably foreseeable methods of compliance, such as transition to the use of nontoxic and less toxic hull coatings. The dischargers are not limited to methods discussed in the Report, and are free to pursue any legal method of compliance. If other methods for achieving the required load reductions are identified as feasible, such as improving tidal circulation or bioremediation, these could be implemented to meet the requirements of the TMDL project. The draft TMDL Report identified the reasonably foreseeable methods of compliance as a requirement of the CEQA. Dischargers may pursue alternative solutions to the water quality impairment due to dissolved copper at SIYB as appropriate.

Comment No. 174 **Comment ID:** 390

Comment: Why did the Regional Board suggest that Hull Cleaning be done without the use of Mechanical Devices on Copper Based Bottom Paints?

To my knowledge there are no scientific studies to support that hull cleaning by mechanical means with various brush systems is more or less environmentally sound than manually by hand. There are at least a third (10) of the companies in San Diego using mechanical devices such as brush systems and pressure washers in their boat cleaning activities. While the CPDA can not endorse either method over the other it recognizes the popularity of such industry mechanization and formulated a BMP section devoted to the proper use of such tools.

Submitted By: Alpha One Diving, Chris Boyd Diving, Star Marine, and California Professional Divers Association.

Response: The TMDL Technical Report has been changed in response to the comment. Use of non-mechanical hull cleaning methods on copper-based antifouling paints as a management practice has been deleted from the Implementation Plan.

Comment No. 175 **Comment ID:** 397

Comment: The Regional Board should directly regulate underwater hull cleaners through individual or general permits, since there are far fewer hull cleaners than vessels.

Currently this industry is unregulated and direct permits would require change and uniformity in hull cleaning practices. Furthermore, direct permits would help level the environmental playing field by requiring that the diving industry as a whole collectively solve the problem. Permits could be used in the future if other waterbodies are listed for copper due in part of underwater hull cleaning and TMDLs are developed.

Hull cleaners should be responsible for developing BMPs for hull cleaning. The Regional Board should work with the hull cleaners to develop and implement BMPs that will satisfy the TMDL requirements and the needs of the hull cleaners. Hull cleaning BMPs have been shown to be effective at reducing copper emissions. Divers have the knowledge and ability to educate boat owners about which hull coatings result in less copper pollution. A BMP program has already been developed by one organization to educate and train their own industry personnel in SIYB and throughout other regions. Furthermore, divers can participate in commercial, scientific and educational programs that would facilitate the reduction of copper.

Marinas are not in the business of hull cleaning and should not be placed in the position of having to develop BMPs for an activity that is beyond their area of expertise. If hull cleaners are indirectly regulated by the marinas, then the marinas would be liable for the acts or omissions of underwater hull cleaners over whom they have even less control than they do over vessel owners, since there is no contractual agreement. The marina owner(s)/operators) would be made vicariously liable for the acts and omissions of underwater hull cleaners when there is no practical or economically feasible way to obtain insurance against such potential liability or to obtain indemnity directly from the hull cleaner.

Submitted By: California Professional Divers Association and Shelter Island Yacht Basin Group.

Response: Individual or general WDRs or waivers could be issued to the boat owners and underwater hull cleaners. However, administering even general WDRs to thousands of boat owners is impractical for the Regional Board in light of its scarce program resources. Additionally, individual regulation of all boat owners and hull cleaners could result in each boat owner and hull cleaner paying annual fees and submitting monitoring reports. Limiting the number of WDRs issued will decrease the overall fee cost and number of reports submitted.

In the case of boat owners, individually regulating thousands of dischargers is not practical when copper load reductions can be achieved by regulating significantly fewer marina owner/operators and the Port. In this case, marina owner/operators and the Port have the ability and the authority to implement effective management practices that will result in reductions in copper loading to SIYB.

Furthermore, regulating individual hull cleaners is not practical because hull cleaning contributes only about 5 percent of the total copper load to SIYB. The Regional Board's limited resources are better directed toward regulating the marina owners/operators who

can exercise control over the hull cleaners working in their facilities. We realize that the marina owners/operators and the Port will be compelled to pay annual fees if WDRs are issued. However, these costs can be passed on to boat owners and hull cleaners operating within marina facilities.

Comment No. 176 **Comment ID:** 402

Comment: Chapter III still has a reference to "NPDES Permits." We believe this was an oversight on the part of the Regional Board.

Submitted By: NMMA and MOAA, Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest, and Shelter Island Yacht Basin Group.

Response: The comment is correct. The reference to "NPDES permits" in section III of the draft TMDL Report was an oversight and has been removed for consistency with the remainder of the Report. A footnote has been added clarifying that "NPDES permits" are in fact WDRs issued under the authority of the California Water Code, Chapter 5.5. These types of WDRs implement federal NPDES regulations.

Comment No. 177 **Comment ID:** 584

Comment: 10) "Total Maximum Daily Load. The TMDL for copper discharges into SIYB is calculated to be 567 kilograms of copper per year (kg Cu/year). The TMDL is equal to the assimilative or Loading Capacity of SIYB for copper and is defined as the maximum amount of copper that SIYB can receive and still attain water quality objectives and protection of designated beneficial uses." (see pg. 9 of Technical Report)

* It is unclear from the text whether the TMDL refers to total recoverable copper or dissolved copper.

* The TMDL is equal to the maximum amount of dissolved copper that can flow into SIYB and still meet the numeric targets. That is not the same as the true biological assimilative capacity for copper or the threshold for beneficial use impairment. Several critical factors were deliberately excluded from the equations used to prepare the estimated TMDL.

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest.

Response: The total maximum daily load described in the Technical Report is expressed in terms of dissolved copper.

The numeric targets for the TMDL were set equal to the water quality criteria for dissolved copper, as set forth in the CTR. These are the legally applicable water quality objectives for SIYB, and are therefore appropriate and necessary numeric targets. Whether or not the values expressed in the CTR are representative of biological assimilative capacity remains to be determined. If SSOs for dissolved copper are adopted for SIYB, then the TMDL will be recalculated as appropriate.

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12. ENVIRONMENTAL REVIEW

The comments in this section pertain to the Environmental Review found in section VI of the Technical Report.

Comment No. 178 **Comment ID:** 440, 590

Comment: The Negative Declaration submitted by the Board staff is directly contradicted by their own Technical Report.

The CEQA Environmental Checklist found in the Technical Report states:

> "I find that the Proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared. " (pg. 84)

Finding 20. DeMinimus Environmental Effects: This Basin Plan amendment will result in no potential for adverse effect, either individually or cumulatively, on wildlife. (pg. R-5)

Contradicted by statements in the Technical Report concerning risk of copper being released from sediment as a result of TMDL implementation. See p. 44 of Technical Report.

The Board staff admitted that copper concentrations from contaminated sediment may be significant:

"...although sediment is believed to act as a net sink for copper under current conditions, sediment could become a net source of copper during a period of low loading at SIYB. When copper in the water column is decreased, the next exchange of copper to the water column from historically contaminated sediments may prove to be significant. " (pg. 28)

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest

Response: The Technical Report did not identify sediment as a significant source of copper to the water column, but concluded that it could become a source if water column concentrations decrease, changing the flux rate between sediment and water column. The Environmental Analysis states that "the overall result of decreasing copper loading to SIYB should result in reductions in copper concentrations in both the water column and sediment."

Further consideration or analysis of this scenario in the Technical Report is not necessary because it is speculative. The applicable provisions of Public Resources Code section 21159 governing the Regional Board's environmental analysis of the reasonably

foreseeable method(s) of compliance specifically provide that the Regional Board is not required to engage in speculation or conjecture on issues that are not ripe for decision at the Basin Plan amendment "performance standard" adoption stage.

If load reductions decrease water column concentrations to levels that reverse the net flux of copper significantly, the TMDL and load allocations can be recalculated, and a load allocated to sediment. Appropriate implementation measures, and any required analyses will be conducted at that time.

Comment No. 179 **Comment ID:** 612

Comment: The Negative Declaration submitted by the Board staff is directly contradicted by their own Technical Report.

The CEQA Environmental Checklist found in the Technical Report states:

"I find that the Proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared. " (pg. 84)

"Finding 20. DeMinimus Environmental Effects: This Basin Plan amendment will result in no potential for adverse effect, either individually or cumulatively, on wildlife." (pg. R-5)

The Negative Declaration requires the Regional Board to demonstrate that the proposed project "COULD NOT have a significant effect on the environment," not merely that there is a low probability of such an effect. Elsewhere in the Technical Report, Board staff warns that:

> "Less effective antifoulant coatings may result in increased fouling community growth on boat hulls. Increased fouling community growth will result in increased hull bottom drag and corrosion, and a subsequent decrease in safety, maneuverability, and fuel efficiency.

A decrease in fuel efficiency would lead to an increase in gasoline consumption for motorized boats, which in turn could have adverse effects on air quality because of increased gasoline combustion. " (pg. 94)

All of these potentially adverse impacts are summarily dismissed as insignificant or controllable without explanation or substantial evidence.

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest

Response: The environmental analysis has been revised to recognize that increased air pollution and increased potential for introduction of invasive species are potential

significant environmental impacts unless mitigation is incorporated. The finding has been revised from "I find that the Proposed Project COULD NOT have a significant effect on the environment" to "I find that although the Proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Project have been made by or agreed to by the Project proponent." Further discussion regarding the potential impacts to air quality and mitigation measures has been added to section VI (Environmental Review) of the Technical Report. In addition, potential mitigation for any impacts due to increased potential for the spread of invasive species was added to section VI.

Comment No. 180 **Comment ID:** 663, 567

Comment: 20) "De Minimus Environmental Effects. This Basin Plan amendment will result in no potential for adverse effect, either individually or cumulatively, on wildlife." (see pg. 11 of Technical Report).

- Contradicted by statements in the Technical Report concerning the risk of alternative anti-fouling compounds being as or more toxic than copper. See p. 93 of Technical Report. Remember historical example of Tributyltin (TBT).

As was the case with tributyltin, a new replacement coating becomes available to replace copper, it may cause its own problems.

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest, Shelter Island Yacht Basin Group

Response: The Technical Report does not contradict the DeMinimus finding in the Resolution. This potential impact discussed in the comment is identified and appropriate mitigation proposed in the Environmental Analysis.

Comment No. 181 **Comment ID:** 547

Comment: Finally, the RWQCB analysis failed to consider impacts associated with its suggested strategy of storing boats out of the water to meet the SIYB/TMDL. There was no analysis of how this would be accomplished. For example, where would these boats be stored? Are the number of cranes sufficient to accommodate the number of boats that might chose to leave the water rather than change bottom paint or pay higher slip fees? Given the lack of space for storage on Shelter Island, potential impacts associated with transporting these boats to and from the water must also be considered. Overall, the District believes that the minimal CEQA analysis conducted by the RWQCB is inadequate for a project of this magnitude and impact.

Submitted By: San Diego Unified Port District

Response: The draft TMDL Report identified potential ways to reduce copper loading to SIYB. One such strategy is to store boats out of water where feasible. The Regional Board recognizes that this will probably not be the strategy employed by the majority of boat owners in SIYB. Rather, the most likely means of compliance by the majority of boat owners in SIYB involves a transition to nontoxic antifouling paints combined with more frequent hull cleaning.

The Regional Board's basin planning process is certified by the Secretary for Resources as "functionally equivalent to," and therefore exempt from, CEQA's requirement for preparation of an environmental impact report or negative declaration and initial study [CCR Title 14, section 15251 (g)]. State Board regulations, "Implementation of the Environmental Quality Act of 1970" [23 CCR 3720 et seq.] describe the environmental documents required for Regional Board basin planning actions. These documents include a written report, an initial draft of the Basin Plan amendment, and an Environmental Checklist Form [23 CCR 3776]. Pursuant to 23 CCR 3777(a) the Regional Board must:

- Describe the proposed TMDL Basin Plan amendment; Identify reasonable alternatives to the proposed TMDL Basin Plan amendment;

- Identify the environmental impacts of the TMDL Basin Plan Amendment in the Environmental Checklist Form [23 CCR 3777].

Specifically, the Regional Board must identify the environmental impacts of the reasonably foreseeable methods to comply with the TMDL Basin Plan amendment; and

- Identify mitigation measures to minimize any significant adverse environmental impacts of the proposed Basin Plan amendment.

The Regional Board has met all of these requirements, thus the environmental analysis is adequate.

Comment No. 182 **Comment ID:** 496

Comment: At the outset, we have to state that based upon our review of the potential environmental impact of copper as an antifouling ingredient and the competing technologies, we firmly believe that copper remains an effective ingredient. If it were the only solution to antifouling, obviously our members would not be offering or developing alternatives. So alternatives will continue to be developed.

That said, however, we also have to acknowledge that there may be cost and performance issues associated with the alternatives when compared to copper antifouling coatings. Certainly copper has been used for a long time. -- literally thousands of years -- as an antifouling material. The TBT ban has put additional emphasis on copper as the primary

replacement material for effective long lasting antifouling coatings. In our view, copper is currently and for the foreseeable future the most effective coating material to prevent hard and soft fouling of vessel bottoms.

The present limitations of biocide free antifouling coatings as compared to copper antifouling coatings are not only recognized by the industry, but also by independent research, such as that conducted by Dr. Dean Wendt of Cal Poly. The minuted discussion of Dr. Wendt at an August 24 workshop on antifouling coatings held in Santa Barbara is as follows:

Professor Dean Wendt mentioned that his program is receiving money from the Office of Navy Research to research non-toxic "foul release" strategies. He thinks that the best candidates are silicone products (organisms attach to a nontoxic coating and are released by vessel movement – slippery). His group has tested new products but most have failed – boats have to go too fast to practically function. No practical options now. (See Attachment.)

In a similar vein, in a meeting with USEPA on the status of biocide free antifouling coatings, a representative of International Paint, a worldwide leading manufacturer of antifouling coatings cited an R&D effort involving a [n effort?] for which the raw material must be synthesized. The resulting coating is expected to cost well in excess of existing coatings, and cannot be accurately forecast at this time.

Submitted By: North American Marine Antifouling Coatings Work Group

Response: Comment noted. A range of alternative coatings that vary in effectiveness are available on the market. There is also increased research by paint manufacturers into alternative coatings. Different antifouling strategies may be appropriate depending on individual situations (i.e. racing sailboats versus powerboats). More information on alternative coating strategies may be found in the following two publications developed by Sea Grant:

1) Johnson, L. and J. Miller. 2002. Traditional and Reduced Biocide Coatings. June 2002. University of California Cooperative Extension -- Sea Grant Extension Program.

2) Johnson, L. and J. Miller. 2002. "What You Need to Know About Nontoxic Antifouling Strategies for Boats." University of California Cooperative Extension – Sea Grant Extension Program. California Sea Grant College Program Report No. T-049.

Comment No. 183 **Comment ID:** 392

Comment: Non-copper paints can cause drag and therefore more fuel consumption, leading to air pollution. The Port noted increased fuel consumption as a result of using alternative coatings on it's fleet, even though it followed the recommended cleaning

schedule for alternative coatings. The environmental analysis should be revised to acknowledge this potential significant impact.

Submitted By: Dan O'Malley, David H. Babcock, and San Diego Unified Port District.

Response: As with all coatings, if an appropriate maintenance program is not followed for boat hulls painted with non-copper based paints, drag will increase, and consequently so will fuel consumption. In general, less toxic and non-toxic alternative coatings require more frequent cleaning in order to remove the buildup of fouling growth and prevent increased fuel consumption. If increased frequency of hull cleaning isn't adequate to prevent significant air pollution, additional measures such as putting pollution control devices on engines may be necessary. The environmental analysis in the Technical Report has been revised to indicate that increased air pollution is a potential significant impact of transitioning to alternative coatings. Appropriate mitigation is identified.

Comment No. 184 **Comment ID:** 401

Comment: Implementation of the TMDL could result in the spread of invasive species into SIYB through the use of less toxic or non-toxic hull coatings in place of copper anti-fouling paints. The Environmental Analysis did not adequately address this.

Submitted By: North American Marine Antifouling Coatings Work Group, Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest, SD Marina LLC, Shelter Island Yacht Basin Group, and San Diego Yacht Club.

Response: The Regional Board has removed the finding that the proposed project could not have a significant effect on the environment due to the introduction of invasive species. The finding has been changed to state that the project will not have a significant effect on the environment due to the incorporation of mitigation. Using less toxic or non-toxic hull coatings in place of copper antifouling paints could result in significant impacts to the environment unless mitigation is incorporated due to the possibility that invasive species could be introduced at a greater rate into SIYB by way of vessel hulls. While this possibility already exists at SIYB, the greater the antifouling on boat hulls, the lesser the possibility that invasive organisms will attach to a hull and be transported from one area to another. Alternative antifouling strategies should be carefully chosen that are effective at reducing fouling growth. Mitigation for this potential impact is to perform underwater hull cleaning on vessels prior to leaving an area known or suspected to support species that could become invasive if brought into SIYB (or other areas). In order to address this issue more fully, a discussion on mitigation was incorporated into the Environmental Analysis in the Final TMDL Report.

Comment No. 185 **Comment ID:** 648

Comment: Moreover, the Draft Report fails to address other practical considerations of conversion to alternative coatings, including potential negative impacts on water quality and beneficial uses. Further research and validation is needed at both federal and local levels.

Alternatively, if copper-bottomed boats are converted to other insecticide-based coatings, there may be impacts to the basin resulting from those chemicals. One leading possible alternative to copper is boron-based coatings, yet the potential effects of passive leaching of boron have not been assessed by the Regional Board, nor does the Draft Report even mention the problem. These issues potentially will have a significant effect on the viability of the proposed implementation plan (the environmental effects of the alternative coatings may be more significant than passive leaching of copper), and should be further evaluated and addressed in the Draft Report.

Submitted By: SD Marina LLC

Response: The Regional Board disagrees that the Technical Report failed to address potential impacts of converting to alternative coatings. Under the Environmental Review section, the Regional Board identified reasonable alternatives and the environmental impacts to the proposed TMDL Basin Plan amendment. Specifically, the Regional Board identified the environmental impacts of the reasonably foreseeable methods to comply with the TMDL Basin Plan amendment, along with mitigation measures to minimize any significant adverse environmental impacts.

The exact means of compliance with the TMDL will be determined by the dischargers. Alternative coatings should be carefully considered and any potential adverse environmental impacts should be evaluated before deciding on a particular antifouling strategy. A number of available alternative coatings have been shown to be nontoxic. The Regional Board agrees that further research into alternative coatings and antifouling strategies is needed.

Comment No. 186 **Comment ID:** 372

Comment: There are no scientific studies demonstrating that environmental protection will be accomplished with non-copper based anti-fouling hull coatings, nor are there any studies currently being undertaken or proposed.

Submitted By: Shelter Island Yacht Basin Stakeholders, Hallmark Yachts, Half Moon Anchorage, Metzger Development Services, LLC., Seabreeze Books & Charts.

Response: The Regional Board has done an extensive amount of research on the issue of copper-based antifouling paint usage and environmental protection. As demonstrated in the Technical Report, environmental protection and the attainment of the copper water

quality objective beneficial uses of SIYB waters cannot be achieved if the number of boat hulls painted with copper-based antifouling paints stays at the current level. At the range of copper concentrations found in SIYB, the scientific literature documents adverse impacts of copper on aquatic organisms, particularly for bivalves, such as clams and oysters. There have also been a number of local scientific studies specifically conducted in SIYB that document elevated copper concentrations in sediment and mussel tissue, SIYB water column and sediment toxicity, and adverse affects on biota. For these reasons, establishment of a TMDL for dissolved copper is needed.

An increase in the usage of alternatives coatings rather than copper-based antifouling paints in SIYB is anticipated as a result of this TMDL project. It is possible that the alternative coatings could prove as toxic or more toxic than copper-based paints. This could potentially lead to violations of the water quality standards for the antifouling agent in the alternative coating. One example of this is the phase-out of TBT that took place as a result of regulations and legislation passed in 1988 prohibiting its use. TBT is a highly toxic chemical to aquatic life that accumulates in sediment, bioaccumulates in shellfish, fish and sea otters and is extremely toxic to various aquatic invertebrates, fish, and plants. Since prohibitions were imposed on the use of TBT in antifouling paints, copper has replaced its use as the toxic ingredient in antifouling paints on recreational vessels in the United States. The presence of copper on the boat hulls at SIYB has resulted in water quality impairment. In order to accurately evaluate the potential environmental impacts of these coatings, scientific studies are needed to accurately characterize the toxicity of the coatings, and caution should be exercised when alternatives strategies are selected.

At present, there are a number of available alternatives that have been demonstrated to be nontoxic in nature. More information may be found in the brochure, “What you Need to Know About Nontoxic Antifouling Strategies for Boats” (Johnson and Miller, 2002).

Furthermore, as a result of this TMDL and greater overall recognition of the problem, an increase in the demand for alternatives to copper-based antifouling paints is likely to occur. Copper pollution has been identified as a problem of concern in marinas and harbors across the nation, including California, Maryland, Washington and Florida, and is also of concern in countries in Europe, including Sweden and Denmark (Johnson and Miller, 2002). In addition, the formal mandate for copper load reductions in the TMDL Basin Plan amendment will, in and of itself, increase the market demand for innovative solutions including non-toxic hull coatings. This in turn will create market incentives for the development of new products.

13. ECONOMIC ANALYSIS

The comments in this section pertain to the Economic Analysis found in section VII of the Technical Report.

Comment No. 187 **Comment ID:** 544

Comment: The economic analysis also fails to take into account all of the potential costs to the marinas. The Implementation Plan suggests that the marinas may control passive leaching by imposing higher slip fees for boats with traditional copper hull paint, and lower slip fees for others, or by simply limiting the number of vessels allowed in the marinas. The economic analysis did not even consider the potential costs that such an approach may impose on the marinas. For example, boat owners may chose to move their boats to other parts of San Diego Bay, elsewhere in California, or to Mexico, if slip fees become cost-prohibitive. This potential consequence of raising slip fees, or of simply limiting the number of boats allowed in the marina, was not even considered in the RWQCB's economic considerations. The cumulative impact that the loss of boats in SIYB would have to businesses other than marinas in the yacht basin was similarly overlooked.

Submitted By: San Diego Unified Port District

Response: The economic analysis required for a TMDL consists of an estimate of the cost of the reasonably foreseeable methods of compliance with the load reductions. The Regional Board has provided this estimate by evaluating approximate cost impacts to boaters, marinas, hull cleaners, marinas, the Port, and boatyards.

Movement of boats out of SIYB into neighboring marinas or areas as a result of TMDL implementation is speculative. Higher slip fees are not likely to deter boaters from mooring in SIYB. Most marinas in San Diego Bay, including those in SIYB, are at or near capacity, with waiting lists for boat slips. Because recreational boating is very popular in the Region, and because of SIYB's desirable location near the mouth of San Diego Bay, the economic consequences of the TMDL for SIYB are not likely to include boaters re-locating to other areas.

Comment No. 188 **Comment ID:** 481

Comment: The TR points out that USEPA has proposed a more stringent numeric criteria for dissolved copper of 1.9 µg/L for chronic exposure. (TR, p. 13.) At page A-4, the TR states that if this new more stringent objective is adopted, the TMDL will be recalculated using the method shown in Appendix D of the Basin Plan. The Basin Plan will not require amendment to incorporate the new objective. Now is therefore the time to evaluate the economic impact of a lower objective of 1.9 µg/L. The economic analysis does not do so and is therefore inadequate.

Submitted By: Shelter Island Yacht Basin Group

Response: The Regional Board disagrees that the economic analysis is inadequate. The draft Technical Report contains an economic analysis that satisfies the requirements of CEQA to conduct an economic analysis of the most reasonably foreseeable methods of compliance with the TMDL and load reductions. If the TMDL project proposed to change the copper objective currently in the CTR, additional economic information would be required. The Regional Board is not required to conduct an economic analysis that takes into account costs associated with implementation in the event that the water quality objectives change in the future.

Comment No. 189 **Comment ID:** 528

Comment: Discharger Strategies to Reduce Dissolved Copper Loading to SIYB, Transition to Nontoxic and Less Toxic Hull Coatings, page 61 -62:

On page 61 and 62, the SIYB/TMDL summarizes the key findings of the Carson Report, upon which it relied heavily in considering the costs and feasibility of implementing the TMDL. Although the SIYB/TMDL states that key among Dr. Carson's findings was that "policy makers must announce a future ban on copper paints and set a specific compliance date," see Bullet 2, it fails to make clear that one underlying assumption of Dr. Carson's projections of the cost and feasibility of transitioning to non-toxic paints was that there had to be a specific date on which copper would be banned. Time and again throughout this document, the importance of this critical step is glossed over and never specifically addressed. As a result, the analysis of costs is flawed, and the proposed plan is likely to fail.

Submitted By: San Diego Unified Port District

Response: The Regional Board disagrees that the analysis of costs is flawed and that the proposed plan is likely to fail. The Carson Report did conclude that a ban on copper-based paints by a specified date would be instrumental in transitioning to nontoxic antifouling paints in San Diego. Additionally, another important policy instrument in this transition would be a requirement that new boats use only nontoxic paints. Both these issues were reported as important instruments that policy makers may wish to consider in resolving the copper pollution problem in San Diego Bay.

The TMDL compliance schedule mandating that load reductions be met in 17 years, rather than a copper paint ban, provides the impetus for the transition to nontoxic paints. Likewise, management measures ensuring that new boats not be painted with copper paints are needed.

The load reductions required for this project, which apply only to SIYB, serve as a mandate to reduce copper loading in SIYB over a 17-year time frame. The Regional

Board believes that the 17-year compliance schedule is sufficient to meet the required load reductions.

Comment No. 190 **Comment ID:** 532

Comment: Discussion of Possible Environmental Impacts and Appropriate Mitigation Measures, page 94 - 96: Please see the District's 12/9/03 Comments, attached as Exhibit 1, at pages 9 –11. With respect to the new paragraph included in the Revised Draft SIYB/TMDL, at page 94, the District disagrees that the "formal mandate for copper load reduction in this TMDL Basin Plan amendment will in and of itself, increase the market demand for innovative solution including nontoxic, effective hull coatings." Until there is a statewide, or even a regional ban, on copper-based antifouling paints, the incentive for paint manufacturers and others to develop innovative alternatives will be muted.

Submitted By: San Diego Unified Port District

Response: Comment noted. The commenter is referred to the most recent Sea Grant publication which states that "[t]he field of alternative bottom coatings has expanded since our first booklet was published in 2002. More coatings are reaching the market and every major paint company is studying biocide-free paints."

Johnson, Leigh Taylor and Jamie Anne Gonzalez. 2004. Staying afloat with nontoxic antifouling strategies for boats. California Sea Grant College Program Report No. T-054. 21 pp.

Comment No. 191 **Comment ID:** 543

Comment: The RWQCB's simplistic approach to economic impacts is seriously flawed in numerous respects. First, the RWQCB determines that the Port District should be responsible for implementing the SIYB/TMDL as a "discharger" because the District allegedly has control over the marinas, which in turn have control over the actual source of passive leaching (i.e., the boat owners). The RWQCB suggests that the District may control the marinas, by amending their existing long-term leases. Yet, the RWQCB's analysis fails to take into account the economic impact a change in ten existing leases (footnote 10) would have upon the District. Contracts, including leases, generally may only be amended upon agreement of both parties. Certainly, as even the RWQCB concedes in its Implementation Plan, concessions are going to be requested by the marinas in exchange for such amendments (footnote 11). The RWQCB has failed to take the cost of these negotiations and potential financial incentives into account in its economic analysis. Moreover, the RWQCB also suggests that the District may decide to offer the same type of "financial incentives" to marinas bay-wide in order to "level the playing field." Certainly, the economic impacts analysis is suspect if these costs have not even been considered.

Footnote 11: Although not analyzed in the economic analysis, the RWQCB states in the Implementation Plan that the District "may consider financial incentives to encourage the use of non-toxic or less toxic hull coatings."

Submitted By: San Diego Unified Port District

Response: The Regional Board disagrees that the economic analysis has not been conducted to determine the real potential economic consequences of TMDL implementation. The economic analysis required for a TMDL consists of an estimate of the cost of the reasonably foreseeable methods of compliance with the load reductions, which the Regional Board believes is the gradual transition to alternative antifouling strategies. The Regional Board has provided this estimate by evaluating approximate cost impacts to boaters, marinas, hull cleaners, the Port, and boatyards.

The draft Technical Report mentions a range of management practices available to the Port to reduce copper loading to SIYB including amending leases and implementation of financial incentives. However, which of these practices the Port might implement, if any, is speculative at this time. For this reason, further economic analysis is not warranted.

Comment No. 192 **Comment ID:** 545

Comment: Finally, the economic analysis with respect to boat owners' implementation of the SIYB/TMDL failed to consider all potential impacts. The economic analysis considers only the costs to a boat owner of converting to non-toxic paint. The economic analysis does not consider, at all, the length of time that will be required to remove and repaint 2,300 boats, the costs associated with higher slip fees in the interim while one awaits the opportunity to convert, the potential for fines if one is unable to have a boat repainted due to the heavy demand, and other related costs. The Implementation Plan suggests that boat owners might consider the use of slip liners, but fails to include the costs of operation and maintenance, and does not even mention the potential environmental impact to fresh water supplies in its CEQA analysis. Finally, without taking into consideration the costs, the Implementation Plan suggests that boat owners might consider landside storage. Plainly, the RWQCB has not conducted the economic analysis that is required to determine the real potential economic consequences of its Implementation Plan for the SIYB/TMDL.

Submitted By: San Diego Unified Port District

Response: The Regional Board disagrees that the economic analysis has not been conducted to determine the real potential economic consequences of TMDL implementation. The economic analysis required for a TMDL consists of an estimate of the cost of the reasonably foreseeable methods of compliance with the load reductions, which the Regional Board believes is the gradual transition to alternative antifouling strategies. The Regional Board has provided this estimate by evaluating approximate cost impacts to boaters, marinas, hull cleaners, the Port, and boatyards. Although the

draft Technical Report mentions other management measures, such as the use of slip liners or landside storage, these other measures are not identified as the most reasonably foreseeable method of compliance.

The draft Technical Report indirectly considers the length of time needed to convert 81 percent of moored boats to alternative antifouling coatings (although the total load reduction is 76 percent, the load reduction required from passive leaching is 81 percent). The Carson Report states that all boats in San Diego Bay could be converted in approximately 7 years, if immediate conversion is the desired goal. This involves converting about 800 boats to nontoxic or less toxic coatings, using all of the boatyard capacity. In contrast, the TMDL requires an 81 percent reduction in loading from passive leaching to SIYB only. This would involve converting approximately 100 boats per year over 17 years. The Regional Board sees no indication that this would not be feasible.

Subsequent consequences of paint conversion, such as higher slip fees and potential fines are speculative at this point. For this reason, further economic analysis is not warranted.

Comment No. 193 **Comment ID:** 559

Comment: The first issue I have is that the Basin Plan Amendment contains no independent analysis on whether the environmental benefits of this Amendment justify the costs of compliance. For the cost of compliance part of the equation, the plan relies almost entirely on what it refers to as the Carson Report. The Carson report's objective was to attempt to evaluate the economic cost of converting to non-toxic bottom paints. It only researched and evaluated the costs associated with respect to the boat owner, not marinas. The only mention of costs that might be attributed to marina or yacht club operators would be a very small administrative cost that the operators would incur in the process of making sure that boats in their marinas were coated with non-toxic bottom paint.

Submitted By: San Diego Yacht Club

Response: The economic analysis that is required for a TMDL consists of an estimate of the cost of the reasonably foreseeable methods of compliance with the load allocations. The Regional Board is not required to do a formal cost-benefit analysis, and can adopt TMDLs despite significant economic consequences.

The economic analysis provided in the draft Technical Report was based primarily on the Carson Report, which evaluated impacts in terms of the boat owners. However, the draft Report takes the analysis a step further and evaluates impacts to boaters, marinas, hull cleaners, the Port, and boatyards. The Report states that for marinas, in addition to costs associated with administration, as noted by the commenter, there will be costs associated with implementing commercial demonstrations and programs to encourage the phase-out of copper-based paints. As a reference, the Report states that over 3 years, Sea Grant spent approximately $450,000-$500,000 for similar efforts.

Comment No. 194 **Comment ID:** 594

Comment: [The Carson Report] also did not effectively address as to whether or not these coatings actually did perform, or if there where any other associated environmental or economic impacts as a result of this proposed conversion. Increased drag, air pollution, increased [illegible].

Submitted By: San Diego Yacht Club

Response: The Carson report did not address the performance of alternative coatings. However, the impacts of transitioning to nontoxic coatings were considered in the Economic Analysis and in the Environmental Analysis. The potential impacts on air quality were discussed in the Environmental Analysis. More information on alternative coating strategies and their effectiveness may be found in Appendix 9 of the Technical Report.

Comment No. 195 **Comment ID:** 439

Comment: Regional Board lacks authority to defer the sediment question to some unspecified future date. Section 13241 of the California Water Code states:

"It is recognized that it may be possible for the quality of water to be changed to some degree without unreasonably affecting beneficial uses. Factors to be considered by a regional board in establishing water quality objectives shall include, but not necessarily be limited to, all of the following: (a) Past, present, and probable future beneficial uses of water. (b) Environmental characteristics of the hydrographic unit under consideration, including quality of water available thereto. (c) Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area. (d) Economic considerations. (e) The need for developing housing within the region. (f) The need to develop and use recycled water. " (emphasis added)

Therefore, to the extent that the peer reviewer and the Board staff believe that environmental characteristics (such as sediment) may affect the quality of water in SIYB and may required coordinated control, the Regional Board must fully review such factors at the time the TMDL is adopted. The issue cannot be deferred. In particular, the Technical Report identified at least one of the remedial actions that may be necessary:

"Copper in sediment may buildup to levels toxic to aquatic life such that costly remediation, i.e. dredging, is required to remove the contamination." (pg. 26)

However, when the Regional Board staff prepared an economic analysis on the proposed TMDL, they failed to consider any of the "reasonably foreseeable" costs associated with

dredging contaminated sediments from SIYB (see pg. R-4). It is likely that such a project would cost several tens of millions of dollars and severely impact the marine habitat.

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest

Response: Water code section 13241 establishes the requirements applicable to the Regional Boards' adoption of water quality objectives. A TMDL is, in essence, an interpretation or refinement of an existing water quality objective; it does not create a new water quality objective. Therefore, section 13241 does not apply to development of a TMDL.

The economic analysis required for a TMDL consists of an estimate of the cost of the reasonable foreseeable methods of compliance with the load and wasteload reductions. The only reasonably forseeable method of compliance with the reductions is phasing out the use of copper-based antifouling paints and increasing the use of nontoxic and less toxic alternative coatings. Whether or not dredging sediment is needed to meet the copper load reductions is not known at this time, and thus, is too speculative to be a reasonably foreseeable method of compliance. The applicable provisions of Public Resources Code section 21159 governing the Regional Board's environmental analysis of the reasonably forseeable method(s) of compliance specifically provide that the Regional Board is not required to engage in speculation or conjecture on issues that are not ripe for decision at the Basin Plan amendment "performance standard" adoption stage. Thus, the Regional Board is not required to analyze the economic effects of dredging sediment.

Comment No. 196 **Comment ID:** 376

Comment: The Technical Report concedes that the Regional Board must do an environmental analysis of the reasonably foreseeable methods of compliance with proposed regulations, including the consideration of economic factors. It attributes the requirement to consider economic factors to the California Environmental Quality Act (CEQA) and completely omits any reference to Water Code section 13241, which specifically requires economics to be considered by a regional board in establishing water quality objectives in a Basin Plan.

"Water quality standards therefore reflect economic considerations, including presumably whether the environmental benefits justify the cost of compliance." City of Burbank v. State Water Resources Control Board, 111 Cal.App. 4th 245 (2003) (FOOTNOTE: The State Board and the Regional Board for the Los Angeles Region did not dispute this. They did, however, contend that once water quality standards are established, they need not revisit economic costs at the permit level. The California Court of Appeal for the 2nd District agreed with the State Board position, however, on November 19, 2003, the Supreme Court of California granted a petition for review of this case. It is therefore

possible that the California Supreme Court will rule that economic costs must also be considered when individual NPDES Permits are issued. :END FOOTNOTE).

The economics analysis in the Draft TMDL does not satisfy the requirements of CWC section 13241 for a number of reasons. It contains no analysis of whether the environmental benefits justify the costs of compliance. The staff performed no independent economic analysis, but relied completely on "Transitioning to Non-Metal Antifouling Paints on Marine Recreational Boats in San Diego Bay" (hereinafter "the Carson Report"). The Carson Report focused on two objectives: (1) a 66% reduction in copper based upon the prior Draft TMDL (rather than the 76% reduction mandated by the Draft TMDL), and (2) a complete phase-out of copper-based hull paints on recreational boats in San Diego Bay (Carson Report, pg. 6). The proposed basin plan amendment relates solely to SIYB, while the Carson Report considered discontinuing copper-based paints throughout San Diego Bay. The Carson Report researched and evaluated the economic impact on individual boat owners. The only mention of potential financial cost to marinas in the Carson Report is the administrative cost involved a regulatory body were to require marinas to maintain a file of certificates from boatyards or from boat owners to confirm that their boats do not have copper coatings. The Carson Report likened this to requiring certificates of insurance.

The Carson Report recommended that any effective policy would require two elements: (1) a requirement that all new boats be required to use non-toxic hull coatings, and (2) a definitive date by which copper hull coatings in San Diego Bay will not be allowed. Note that the ban on copper hull coatings would be for all of San Diego Bay. The underlying assumption in the Carson Report is that these requirements and bans will be issued by a governmental regulatory agency or enacted by legislation. There is no such pending legislation and no pending regulatory action by DPR.

The Carson Report assumes that government agencies will fund (1) the required demonstration projects, (2) educational activities, (3) subsidies provided after the demonstration periods to encourage application of non-toxic paints by either paying for part of the stripping or painting costs (a subsidy to the boat owner) and will collect any revenues from imposition of user fees on copper hull paints. In contrast, the Draft TMDL places the economic burden of a two-year educational effort on copper pollution directed at boat owners, hull cleaners, boatyards and other boating industries and a two-year commercial demonstration for boat repair yards and underwater hull cleaning companies on the marina owners and operators and the Port District. The only estimate of the cost of these educational programs and commercial demonstrations is a statement that the Sea Grant Program has been involved with educational issues since 2000, and to date has spent approximately $450,000 to $500,000 on these efforts. There is no estimate of what future efforts might cost. In addition, the Draft TMDL states "the marina owner(s)/operator(s) and yacht clubs may choose to apply for grants to help fund these efforts." We are not aware of any grant programs that award grants to privately owned, for-profit companies.

The economics analysis is defective also in that it gives no analysis of the cost of implementing the proposed TMDL in the context of SIYB. Marinas are expected to turn into regulators and presumably will have all of the same expenses that government regulators have without any public funding. They are expected to meet the copper waste load reductions, conduct boater education programs, participate in undefined compliance monitoring in SIYB, and coordinate and oversee commercial demonstrations and scientific studies. There is absolutely no description of what compliance monitoring may be required, and therefore no analysis whatsoever of the economic impact that this could have.

An even more fundamental issue is that the Carson Report, which assumed any regulatory policies would apply to all of San Diego Bay, states: "We will not consider any policy which would achieve the Regional Board's TMDL for Shelter Island Yacht Basin by relocating the boats elsewhere at other marinas and mooring locations in San Diego Bay, as it would simply recreate the problem elsewhere in San Diego Bay." (Carson Report, pg. 16.) The proposed Basin Plan amendment would do precisely this. Because the Basin Plan amendment only relates to SIYB, it is highly likely that without at least a regional legislative or regulatory ban on copper bottom coatings, if the SIYB marinas require slipholders to convert to non-copper bottom paint, the slipholders will simply relocate to one of the other 25 public marinas in San Diego. The marinas' sole source of income is revenues from slips. A mass exodus of boats from SIYB would spell economic disaster for all of the marinas.

We therefore submit that the economics analysis is fundamentally flawed and completely inadequate to support the proposed Basin Plan amendment because it does not analyze the economic impact to SIYB marinas.

Submitted By: Shelter Island Yacht Basin Group

Response: The Regional Board disagrees with the statement that the economic analysis is inaccurate and inadequate to support the proposed Basin Plan amendment. The Technical Report contains an economic analysis that satisfies the requirements of the CEQA. Pursuant to the CEQA, the Regional Board is required to do an economic analysis of the most reasonably foreseeable methods of compliance with the TMDL and load reductions [Public Resources Code section 21159(c)], in this case the conversion from copper-based paints to nontoxic or less toxic alternatives. The Regional Board can adopt TMDLs despite significant economic consequences. The Regional Board is not required to do a formal cost-benefit analysis.

CWC section 13241 applies to the establishment of new water quality objectives. This TMDL project does not establish any new water quality objectives, but rather implements the existing water quality objectives for dissolved copper in the CTR. If the TMDL project proposed to change the copper objective currently in the CTR, additional economic information would be required to satisfy the requirements of section 13241. The applicable provisions of Public Resources Code section 21159 governing the Regional Board’s environmental analysis of the reasonably forseeable method(s) of

compliance specifically provide that the Regional Board is not required to engage in speculation or conjecture on issues that are not ripe for decision at the Basin Plan amendment "performance standard" adoption stage. The Regional Board's method of analysis to identify environmental impacts associated with the Chollas Creek TMDLs is based on a "tiering" (Public Resources Code section 21068.5) approach to provide increased efficiency in the CEQA process. Tiering allows the Regional Board to limit its analysis in this document to the broad environmental issues at the Basin Plan amendment "performance standard" adoption stage that are ripe for decision. The Regional Board is not required, at the Basin Plan amendment adoption stage, to evaluate environmental issues associated with specific projects to be undertaken later to comply with the performance standard (Public Resources Code sections 21159 through 21159.4 and CCR 14 section 15187. See also the legislative intent in Public Resources Code section 21156, and the statutes regarding "tiered" environmental review in sections 21068.5, and 21093-21094). CEQA provisions allow for project level environmental considerations to be deferred so that more detailed examination of the effects of these projects in subsequent second tier CEQA environmental documents can be made by the appropriate lead agency.

The comment is correct that there are more costs to implementing the TMDL project than are analyzed in the economic analysis. The cost of preparing a pollution control plan to implement the TMDL is estimated to be between $6,000 and $8,000. This cost estimate assumes that one plan will be prepared by a consultant to be used by all of the marinas at SIYB. Likewise, the cost of preparing a pollution control plan by the Port to implement the TMDL was estimated to be between $6,000 and $8,000. These estimates are based on the costs to develop workplans routinely submitted by dischargers to the Regional Board.

There also will be costs to the marina owners/operators and/or the Port associated with monitoring and reporting on the status of the water column in SIYB to ensure that the required load reductions for copper discharges are met. The Technical Report stated that there would be little to no economic burden associated with monitoring since the Regional Board will likely require copper monitoring at SIYB under the Regional Harbor Monitoring Program. The Regional Harbor Monitoring Program is a single coordinated monitoring program covering all of the harbors in the San Diego Region, including San Diego Bay. The Port is participating in this program. Nonetheless, the cost of compliance monitoring was estimated to be approximately $50,000 for the first year, and $34,000 annually for subsequent years. These values were based on costs to conduct sampling in San Diego Bay for dissolved copper under a contract with the SCCWRP through the Surface Water Ambient Monitoring Program. Monitoring estimates included development of a workplan and quality assurance plan, sampling and analysis for chemistry and toxicity at SIYB, as well as data management and reporting. Actual costs are likely to be lower as the SCCWRP workplan includes toxicity identification evaluation studies, sediment sampling, and bioassays.

Additional costs may be incurred to administer and enforce the plan, and to report to the Regional Board. Any administrative, enforcement and reporting costs are too speculative

to quantify at this time. However, compared to the costs discussed above, enforcement and reporting costs are expected to be minor. Other economic impacts associated with implementing the plans depend on the specific MPs selected for implementation, and other provisions in the pollution control plan. Economic analysis of the specific projects to be undertaken to later comply with the TMDL is too speculative to undertake in the Technical Report.

Comment No. 197 **Comment ID:** 435

Comment: The economic analysis is flawed because the Draft TMDL does not analyze the costs to marina owners/operators of implementing the TMDL. It merely states that a two year educational program has been conducted by Sea Grant at a cost of $450,000.00 - $500,000.00. It goes on to state that continuation of these types of programs shall be the responsibility of the marina owners/operators and the Port District. It admits that subsequent enforcement of programs and subsequent reporting to the Regional Board will cause marina owners/operators to incur additional costs, but makes no effort to identify what these additional enforcement and reporting efforts might be and makes no effort to quantify the cost.

Submitted By: Shelter Island Yacht Basin Group

Response: Regarding boater education programs and coordinating commercial demonstrations and scientific studies, based on limited information on the costs of such programs, the Regional Board used best professional judgement to arrive at an estimated cost of $450,000-$500,000 over three or four years. The Regional Board recognizes that as privately owned, for-profit companies, the marinas alone are not eligible for most grants. We suggest that the marina owners and operators in SIYB partner with the Port District or other eligible agencies in applications for grant money to be used for boater education programs or commercial demonstration projects.

The economic analysis in the Technical Report is adequate because it estimates the cost of the reasonably foreseeable methods of compliance with the load reductions, in this case the conversion from copper-based paints to nontoxic or less toxic alternatives. The Regional Board can adopt TMDLs despite significant economic consequences. The Regional Board is not required to do a formal cost-benefit analysis. Further discussion concerning the costs of implementing the TMDL is contained in comment No. 196.

Comment No. 198 **Comment ID:** 358

Comment: It has come to my attention that inaccurate statements were made at a meeting held at Silvergate Yacht Club on January 15, 2004 concerning our economic research on the availability of effective, nontoxic coatings. The second comment that was reported to me from the January 15, 2004 meeting was that there are no effective nontoxic coatings.

Our field demonstration of nontoxic boat bottom coatings that was supported by a 319(h) grant found good results with two, epoxy type coatings. As noted above, the Carson Report's economic analysis was based on a nontoxic epoxy-based coating. The two coatings for which we found good results were Aquaply M, a two-part epoxy coating manufactured by Sound Specialty Coatings, and CeRamKote, a ceramic-epoxy coating manufactured by Freecom.

Aquaply M has been on the boat of Dick Cloward, former Director of the San Diego Port Tenants Association, for five years. Upon haulout and inspection in October 2003, Bill Roberts of Shelter Island Boat Yard and Marlan Hoffman of California Marine Services agreed that the coating was in good condition and could be expected to last at least two more years. They are well qualified to assess the condition of boat bottom coatings. Mr. Cloward reported in a summer 2002 interview that appears in our UCTV documentary that he had at least broken even, economically, with Aquaply M and had reached the point where it would cost less over its lifespan than a copper-based coating (that needs to be replaced on average after 2.5 years).

Aquaply M was applied to the boat of Todd Schwede, a professional marine surveyor, in summer 2002. It had been on his boat for over a year by the time of our inspection in October 2003. The boat was cleaned periodically with a powered brush and there was some wearing on the edges of the chines (step-like features on the bottom of power boats). Tom Nielsen of Nielsen Beaumont Marine recently showed us a power boat with a copper-based epoxy that had been cleaned with a powered brush and had similar wearing on the edges of the chines. He explained that such wearing is typical where the force of the brush is concentrated on a narrow edge, instead of spread over a flat surface. Mr. Schwede has elected to keep Aquaply M on his boat, although we had agreed to recoat it with a copper-based paint if he was not satisfied with the nontoxic coating. Mr. Roberts and Mr. Hoffman also commented that this coating was in good condition.

CeRamKote 54 was applied to two boats in our project during summer 2002. Shelter Island Boat Yard replaced the coating on one boat with a new formulation, CeRamKote Marine, in the spring of 2003. The reason the boatyard replaced the coating was that the surface was rough where the blocks had supported the boat, so it was difficult to clean in that area. The recoated surface had been sprayed on and was in beautiful condition when we inspected it in October 2003. The other boat in our project had had CeRamKote applied with rollers at a boatyard in Newport Beach in summer 2002. The roller application left an "orange peel" effect on the surface that was more difficult to keep clean. However, it was also in good condition. Neither boat had chines, however the powerboat showed no wear on the corner where the side became the bottom. This area must generally be cleaned aggressively because light stimulates fouling growth. The lesson from this is that application of the coating is critical to performance and that the very durable ceramic-epoxy holds up well to cleaning with powered brushes.

Two other coatings that we investigated showed less promising results. Sealcoat which performs well in northern Europe, was badly fouled by the South China Seas Coral Worm that has invaded San Diego Bay. Miracle Cover, a low-cost silicone coating, has a

much shorter life span than epoxy coatings. However, it is easily cleaned and is attractive to racers.

Our 2002 booklet, What You Need to Know about Nontoxic Antifouling Strategies for Boats, lists a variety of nontoxic antifouling coatings. We continue to receive calls and emails from a variety of companies that are developing new coatings they claim are nontoxic or low toxic. Nielsen Beaumont Marine advised us this month that they will apply one such coating, BC-10 by Sharkskin Marine Products, to a local boat.

I want to emphasize that there is a need for long-term testing of new products under climatic and operational conditions experienced by local, recreational boats. Nontoxic paints with longer lifespans will allow the increased costs for conversion and maintenance to be amortized. Thus, it is important to ensure that the timetable for the TMDL implementation plan provides time for testing efficacy and lifespan of new products before large numbers of boats must be converted to nontoxic coatings.

Submitted By: Leigh T. Johnson

Response: Comment noted. The schedule for TMDL implementation was made sufficiently long (17 years) to allow for further testing of the efficacy and lifespan of nontoxic and less toxic alternative coatings.

Comment No. 199 **Comment ID:** 407

Comment: It has come to my attention that inaccurate statements were made at a meeting held at Silvergate Yacht Club on January 15, 2004 concerning our economic research on the availability of effective, nontoxic coatings.

The first comment made at the January 15, 2004 meeting that was reported to me concerning our economic research (Carson Report) was that the average, 15-year stripping cycle was inaccurate and that we did not speak to enough boat repair yards about the stripping cycle for bottom paints. The length of the stripping cycle was also questioned at the December 10, 2003 TMDL public hearing by Mr. Tom Driscoll of Driscoll Boatworks. Mr. Driscoll was interviewed by Dr. Carson during the course of our research and he served on the advisory committee for the study when it was conducted during 2002. Advisory committee members met with Dr. Carson to discuss the research plan, preliminary findings, guidance for completing the study, and the draft study report which had been provided to them for review. The 15-year stripping cycle was cited by boat repair yards and hull cleaners as an average during interviews conducted for the economic study. The average, 15-year stripping cycle was a turnstone of the study report's recommendations that a 15-year phaseout of copper based paints would cost San Diego Bay boaters an aggregate of $1 million versus an aggregate cost of $20 million for a 7-year phaseout. This analysis was based on a stylized, 40-foot boat with an epoxy-based, nontoxic bottom coating.

We learned before the hearing that Mr. Driscoll had questioned the 15-year, average stripping cycle for copper-based boat bottom paints. As a result we polled 10 boat repair yards in San Diego and Orange Counties in fall 2003 who reported a range of 8-20 years although one, Mr. Driscoll, mentioned 30 years at the outside. When we questioned boatyard owners about the reason for such a wide range, they explained that the time before stripping is needed can be extended if the fouling growth is removed often and carefully while the boat is in the water and if the surface is cleaned well each time before it is repainted. For example if remnants of old fouling growth, rough spots etc. are not removed, the build-up of material may cause the paint to crack and chip when the boat is hauled.

The reason that the stripping cycle matters is that old copper paint must be removed before a nontoxic coating can be applied. This raises the cost of conversion considerably, as noted in the Carson Report. If a boat can be converted when it is nearing or at the time when it would need to be stripped anyway, the cost of conversion would be folded into the normal maintenance schedule.

Further, a nontoxic coating does not retard fouling growth, so it must be cleaned more often to reduce drag. Frequent cleaning prevents growth from hardening and from penetrating the coating as it matures. Hardened growth must be cleaned more aggressively, increasing the likelihood of damage to the coating. As growth penetrates the coating, it leaves tiny pits that roughen the surface and make it easier for the next generation to become established. Thus, nontoxic coatings also have higher maintenance costs. Lifespan of the coating is important in making up for the higher application and maintenance costs.

Submitted By: Leigh T. Johnson

Response: Comment noted.

Comment No. 200 **Comment ID:** 357

Comment: Laura Hunter of Environmental Health Coalition also made a statement at the hearing that I believe is inaccurate. Ms. Hunter commented at the public hearing that the 7-year minimum for conversion of all recreational boats in San Diego Bay was too long. The 7-year minimum timetable was proposed in the Carson Report and was based on interviews with boatyard owners. Ms. Hunter has suggested that if a more rapid phaseout of copper-based boat bottom paints is imposed, additional boatyard capacity will develop. I question this assumption on three grounds:

1. I have been advised by boatyard owners that space for a new boatyard facility in or near San Diego Bay is extremely limited.
2. Expanding boatyard capacity would require a considerable capital investment. Our interviews found that, once the phaseout was complete, boatyard business is likely to

decline, due to the longer lifespan of many nontoxic coatings. Thus, it would be difficult to amortize capital investments needed to create the extra boatyard capacity.
3. I have been advised that some boatyards lease space to other companies that conduct boat repair work on their premises. This is not an increased capacity, simply a change in who is utilizing the capacity.

Submitted By: Leigh T. Johnson

Response: Comment noted.

Comment No. 201 **Comment ID:** 371

Comment: At the present time there is not an acceptable established replacement bottom paint that provides protection from the growth of marine life on the bottom of boats that can be used effectively at a reasonable cost. It is not true that the proposed action would not pose significant undue hardships to the boating community. Many boaters will not have the financial ability to comply. The proposed regulation would pose a severe financial hardship to the boating community without even any surety that it would accomplish a decrease in copper levels.

Submitted By: SIYB Stakeholders, Half Moon Anchorage, San Diego Yacht Club, Seabreeze Books & Charts.

Response: The Regional Board disagrees with this comment. A range of nontoxic and less toxic alternative coatings is available on the market today and there is growing interest by paint manufacturers in further product development. As product research and development continues, better product technology, availability, and lower prices will likely result. In the big picture, overall costs to the boating community as a result of TMDL implementation will decrease with the continued growth of the market for alternative coating products. The mandate for achieving the copper load reductions specified in the SIYB TMDL serves as a small, but nonetheless important, impetus for this overall process.

The draft Technical Report concludes that 98 percent of the copper loading into SIYB comes from copper-based antifouling paints applied to the boats moored in SIYB. Therefore, the proposed Implementation Plan calls for reductions in copper loading from this source to meet water quality objectives at SIYB.

Under the proposed Implementation Plan, copper load reductions will be accomplished by the Regional Board, other governmental agencies, and identified dischargers of copper over a 17-year time frame through a variety of means. However, the most reasonably foreseeable method of compliance with the required copper reductions will involve gradually phasing out the use of copper-based antifouling paints and increasing the use of nontoxic and less toxic alternative coatings. Although the Regional Board acknowledges that increased costs will likely be associated with implementation of the TMDL, the

economics analysis showed that nontoxic epoxy coatings can be more cost effective over the long-term. Initial costs associated with using copper-based antifouling paints are lower than costs associated with nontoxic epoxy coatings. However, boat owners likely will realize small cost savings on nontoxic hull coatings and maintenance over the life of the boat compared to the costs associated with copper paint usage.

The economics analysis performed in the SIYB TMDL was based in large part on the findings of an important economics report, "Transitioning to Non-Metal Antifouling Paints On Marine Recreational Boats in San Diego Bay" (Carson et al., 2002). The Carson report was conducted by a professor of economics at the University of California, San Diego, in conjunction with the DBW. The report compared the costs of using nontoxic alternative epoxy coatings to traditional copper-based antifouling paints on recreational vessels from a San Diego Bay-wide perspective. The Carson Report found that a conversion from copper to nontoxic epoxy coatings would not result in substantial economic hardship to the boating community. This finding is premised on two assumptions: 1) all newly manufactured boats would be painted with nontoxic coatings; and 2) only boats in need of routine stripping (one the most expensive maintenance costs) would be re-painted with nontoxic coatings.

The cost estimates described in the Carson Report are based on the assumption that boat owners routinely strip boat hulls every 15 years. Under the least-cost scenario, it was assumed that all new boats and boats in need of conversion would be painted with alternative coatings, thereby reducing the stripping costs associated with the application of the paints. Based on the available data, the Regional Board believes the assumption that boat owners routinely strip boat hulls every 15 years is valid. Subsequent to the release of the Carson report, the University of California Sea Grant Extension Program conducted a poll of 10 boat repair yards in San Diego and Orange Counties in fall 2003. These boatyards reported a range of 8-20 years before stripping is required, although one (Driscoll Boatworks) mentioned 30 years.

The Regional Board recognizes that stripping a boat hull of all paint and replacing it with nontoxic alternatives, no matter what the actual timeframe, is far more labor intensive and expensive than simply repainting with copper-based paint. The TMDL economic analysis, which is based almost entirely on the Carson report, stated that paint stripping costs are approximately $150/sq. ft. versus $30-$50/sq. ft. for a paint application. Using these cost estimates, the conversion to non-toxic alternatives for all boats in San Diego Bay over a 15-year timeframe would cost $1.5 million more than continuing to use copper-based paints. Additionally, since the Implementation Plan applies only to SIYB and not all of San Diego Bay, the total cost of conversion would be even less. Alternatively, it would cost upwards of $20 million if the conversion took place over 5 years. For these reasons, the Implementation Plan contains a 17-year compliance timeframe. The 17-year timeframe was established to allow for a more gradual, less expensive conversion from copper-based paints to non-toxic and less-toxic coatings.

The economics analysis and a more detailed description of the Carson Report can be found in the draft Technical Report.

Comment No. 202 **Comment ID:** 387

Comment: Several commenters questioned the finding in the Carson report that boats are stripped of hull paint on average every 15 years as part of routine maintenance. The commenter claim that most boat owners do not routinely strip their boat hulls, and therefore, the economic analysis is flawed because it did not account for this expense in analyzing the cost of converting to non-toxic epoxy coatings. Ms. Jan Driscoll's comment on this issue is comprehensive and included in its entirety below.

The economic impact of the proposed Basin Plan Amendment on marinas, yacht clubs, and individual boat owners has not been adequately analyzed. Chapter IX of the draft TMDL contains the economics analysis. It relies on the "Carson Report", which considered economic impacts and incentives from a San Diego Bay-wide perspective. (Draft TMDL, page 108). Table 30.1 lists the assumptions upon which the major findings of the Carson Report are based. They include the assumption that copper based antifouling paints must be stripped (to the bare hull surface) every fifteen (15) years.

"To be cost effective, non-toxic epoxy coatings must be applied to new boat hulls or existing boat hulls that are in need of stripping. This is because of the high costs associated with labor intensive hull stripping. New boats do not require hull stripping and existing boats are only required to convert to non-toxic coatings at the point in time when routine stripping will be required in any event (i.e., every fifteen years)." Draft TMDL, page 109.

The SIYB Group questioned this assumption. Accordingly, we sent questionnaires to slip holders to inquire about the frequency of hull stripping within Shelter Island Yacht Basin, which is the subject of the Draft TMDL. 173 boat owners from SIYB responded. In contrast to the Carson Report assumption that all boats will be stripped every 15 years, the results of this survey show that fewer than five percent (5%) of those responding have ever stripped their boats to bare hull. SIYB Group believes that this is a fair representation of the vessels that are actually berthed in the SIYB marinas and yacht clubs. Attached as Exhibit B is a summary of the findings of the questionnaire. Attached as Exhibit C are copies of all questionnaires that were returned.

We believe that this unfounded assumption in the Carson Report may spring from a misunderstanding of what "stripping" actually is. It is true that copper based bottom paints must be re-coated on the average every 18 to 30 months. However, preparation for this re-coating includes hydro washing, sanding if necessary, and preparation of any areas that require special attention. This is far less labor-intensive and less expensive than stripping to the bare hull surface. Typically, boat owners do not strip their hulls unless there is some major problem, such as bubbling, etc. Attached as Exhibit D is the Declaration of Thomas A. Nielsen, who has been in the boat maintenance and repair business for 25 years. Paragraphs 1, 2 and 3 of Mr. Nielsen's Declaration establish the normal requirements to have a bottom re-coated with copper bottom paint. The cost of fully stripping a boat is $130.00 per foot. The cost of cleaning, sanding and properly

preparing a boat bottom for a new coating of copper-based antifouling paint is approximately $20.00-$35.00 per foot. Declaration of Thomas A. Nielsen, Paragraph 3. Therefore the costs included in the Carson Report grossly understate what the actual costs of requiring conversion to non-copper bottom paints would be.

Submitted By: Adams and Albies Inc., Ann Miller, Dan O'Malley, Ed Short, Hallmark Yachts, Janice Payne, Jim Hoslison, James Barnum, Robert W. Johnson, San Diego Yacht Club, and Shelter Island Yacht Basin Group.

Response: Ms. Leigh Johnson of The University of California Sea Grant Extension Program addressed this issue in a letter dated January 21, 2004. On the issue of stripping frequency, she provided the following response:

"We polled 10 boat repair yards in San Diego and Orange Counties in fall 2003 who reported a range of 8-20 years [between stripping events] although one, Mr. Driscoll, mentioned 30 years at the outside. When we questioned boatyard owners about the reason for such a wide range, they explained that the time before stripping is needed can be extended if the fouling growth is removed often and carefully while the boat is in the water and if the surface is cleaned well each time before it is repainted. For example if remnants of old fouling growth, rough spots etc. are not removed, the build-up of material may cause the paint to crack and chip when the boat is hauled."

The Sea Grant poll supports the Carson report conclusion that boats are stripped on average every 15 years. Nonetheless, for owners who never strip their boats, the conversion to non-toxic epoxy coatings would cost an additional $5,200 to $6,000 compared to a boat owner who includes stripping as part of routine boat maintenance (assuming an average boat length of 40 feet and a stripping cost between $130 to $150 per foot). This analysis has been added to the Technical Report.

The economic analysis in the Technical Report is adequate because it estimates the cost of the reasonably foreseeable method(s) of compliance with the load reductions, in this case the conversion from copper-based paints to nontoxic or less toxic alternatives. The Regional Board can adopt TMDLs despite significant economic consequences. The Regional Board is not required to do a formal cost-benefit analysis.

Comment No. 203 **Comment ID:** 618

Comment: Compliance with the new regulations will triple the cost of repainting the boat hull (from $50/sq. ft. to $150/sq. ft.) and double the cost of hull-cleaning maintenance.

Submitted By: Adams and Albies Inc.

Response: The Regional Board recognizes that implementing the TMDL requirements will initially result in increased cost to boaters from switching to alternative coatings.

The cost increases may be offset at least in part by the increased longevity of many of the alternative coatings.

As discussed in the economic analysis of the draft Technical Report, conversion to and maintenance of nontoxic antifouling coatings would be more costly than using copper based paints. Most notably is the cost associated with stripping old paint (estimated in the Carson Report as $130 to $150 per foot). The Carson Report states that most boaters in San Diego Bay strip copper based paints from hulls roughly every 15 years to prevent build-up, although there has been recent disagreement from boaters stating that stripping is seldom performed.

For boat owners who never routinely strip their boats, the conversion to non-toxic epoxy coatings would cost an additional $5,200 to $6,000 compared to a boat owner who includes stripping as part of routine boat maintenance (assuming an average boat length of 40 feet). The Regional Board also agrees that the cost of hull-cleaning maintenance would be greater with nontoxic antifouling coatings over copper-based antifouling paints.

Comment No. 204 **Comment ID:** 462

Comment: A 1997 economic impact study which assessed the total economic contribution of boating and related industries in California reveals that boating contributed $11 billion to the gross state product (GSP) in 1995, or 1.2 percent of the total State economy. In terms of employment, the boating industry in California represents 1.3 percent of total jobs in the State, with the industry employing nearly 200,000 employees in 1995. In addition to supporting a vast workforce, the boating and marina industries contribute significantly to state and local revenues. In 1995, boating contributed $344,116,370 to California state revenues. In local property taxes, boating contributed $113,304,925, with nearly $20 million generated directly from marinas. In sales taxes and business licenses, boating generated an additional $131 million for localities in the state. E. Rust & M. Potepan, The Economic Impact of Boating in California, Public Research Institute, San Francisco State University and Planning and Applied Economics, Berkeley, California, July 1, 1997 (prepared for the California Department of Boating and Waterways).

Submitted By: NMMA and MOAA

Response: Comment noted.

Comment No. 205 **Comment ID:** 461

Comment: More broadly, NMMA and MOAA wish to endorse the past and current comments of the local Shelter Island Yacht Basin Group to the Board's attention. These stakeholders have the greatest familiarity with the waters of the Basin, their uses, and their needs. The economic impact of the Board's actions will be felt directly by these

local businesses, the businesses that support them, and the boaters that use their facilities.' The comments and concerns of this important group are entitled to great weight and must be responded to with the utmost care.

Submitted By: NMMA and MOAA

Response: Comment noted.

14. PEER REVIEW COMMENTS AND RESPONSES TO COMMENTS

The comments in this section pertain to the Peer Review comments and responses to comments found in Appendix 7 of the Technical Report.

Comment No. 206 **Comment ID:** 475, 367

Comment: All the changes to the Draft TMDL still rely on questionable factual assumptions and flawed technical analyses. No further opportunity for peer review was offered by Regional Board staff.

The peer review process was inadequate. There was only one peer reviewer and every comment he made was ignored or rejected.

Submitted By: Shelter Island Yacht Basin Group

Response: The Regional Board disagrees with the statement that the draft Technical Report relies on questionable factual assumptions and flawed technical analyses. All assumptions and analyses were based on best available data and information, and are explained and referenced in all relevant areas of the draft Technical Report.

The Regional Board has met all statutory requirements regarding peer review. Peer review was conducted in accordance with the California Health and Safety Code, Division 37, section 57004. Appendix 7 of the Technical Report lists the Regional Board's responses to all of the peer reviewers comments, concerns and recommendations.

Comment No. 207 **Comment ID:** 588

Comment: 16) "Scientific Peer Review. The scientific basis for this TMDL has undergone external peer review pursuant to Health and Safety Code Section 57004. The Regional Board has considered and responded to all comments submitted by the peer review panel." (see pg. 10 of the Technical Report)

- Acknowledging a peer reviewer's comment is not the same as responding to it. Asserting the legality of the Regional Board's approach is not a scientific defense to a technical criticism raised by the Peer Reviewer (see pg. 155-160 of Technical Report)

- The quality of scientific evidence and reasoning used to support the TMDL is also governed by The Federal Data Quality Act, and OMB's related regulations, requiring the Regional Board's decisionmaking process to be "transparent and reproducible."

Submitted By: Bay Club Marina, Fraser/Gold Coast Marina, Half Moon Anchorage, Shelter Island Marina, Kona Kai Marina, San Diego Yacht Club, Southwestern Yacht Club, Silvergate Yacht Club, Tonga Landing & Crow's Nest.

Response: The Regional Board interpreted this comment to imply that our responses to the peer review comments were inadequate, to which we disagree. The Regional Board considered and responded to each comment submitted by the peer reviewer. Furthermore, we made modifications to the draft Technical Report based on the peer reviewer's comments where appropriate. When no change was made, a justification was provided